RCRA Facility Investigation and Remedial Investigation Report, PG&E Topock Compressor Station, Needles, California

Volume 3 – Results of Soil and Sediment Investigation

Original Submittal December 2019

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Pacific Gas and Electric Company

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Prepared for

California Environmental Protection Agency, Department of Toxic Substances Control and

U.S. Department of the Interior

on behalf of

Pacific Gas and Electric Company

September 2023

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Executive Summary

Pacific Gas and Electric Company (PG&E) is conducting investigative and remedial activities at the Topock Compressor Station (TCS) site (Site) located in San Bernardino County, approximately 15 miles to the southeast of Needles, California. These activities, referred to as the Topock Remediation Project (project), are being carried out as directed by the California Department of Toxic Substances Control (DTSC) and U.S. Department of the Interior (DOI) under the authority of Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In February 1996, PG&E and DTSC entered into a Corrective Action Consent Agreement pursuant to Section 25187 of the California Health and Safety Code (DTSC 1996). In July 2005, PG&E and the federal agencies entered into an Administrative Consent Agreement (ACA) (DOI 2005). Under the terms of the Corrective Action Consent Agreement and ACA, PG&E agreed to conduct the RCRA facility investigation (RFI) and CERCLA remedial investigation (RI) to identify and evaluate the nature and extent of contamination at the TCS. This report is the final volume in a three-volume RFI/RI Report detailing these findings. The previous volumes are:

- *Revised Final RCRA Facility Investigation and Remedial Investigation Report, Volume 1 – Site Background and History* (CH2M 2007a)
- *Revised Final RCRA Facility Investigation/Remedial Investigation Report, PG&E Topock Compressor Station Needles, California, Volume 2 – Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation* (CH2M 2009a)

This Soil RFI/RI Report presents the soil characterization results for all areas of the Site, including:

- Areas outside the TCS fence line (Part A investigation areas)
- Areas inside the TCS fence line (Part B investigation areas)
- Perimeter areas adjacent to the TCS fence line
- Storm drains leading from the TCS to areas outside the fence line.

In addition to the summary of the soil investigation program, this RFI/RI Report also presents the data summary and data quality objective (DQO) evaluations, the Soil Human Health and Ecological Risk Assessment (HHERA) summary, and conclusions and recommendations based on the presented data.

ES.1 Overview

The TCS is an active natural gas compressor station located in the southern portion of the Mohave Valley, along the California-Arizona border in eastern San Bernardino County, California. It is located about 15 miles southeast of Needles and is approximately 1,500 feet from the Colorado River and 2,000 feet from the California-Arizona state border. The TCS occupies approximately 15 acres of a 65-acre parcel of PG&E-owned land.

The TCS property is immediately surrounded by the land of the Havasu National Wildlife Refuge (HNWR). The HNWR was established in 1941 to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The area surrounding the HNWR includes land owned or managed by a number of government agencies and private entities, including the following:

- U.S. Bureau of Land Management (BLM)
- U.S. Bureau of Reclamation (BOR)
- U.S. Fish and Wildlife Service
- San Bernardino County
- California Department of Transportation (Caltrans)
- BNSF Railway (BNSF)
- Metropolitan Water District of Southern California
- Fort Mojave Indian Tribe (FMIT)

Land uses near the TCS are predominantly open space, interspersed with industrial facilities, recreational uses, and transportation infrastructure. The surrounding land lies within an area of significant cultural, archaeological, and historical resources. The nearest communities are mobile home parks at Topock, Arizona and Moabi Regional Park, California.

The following Native American Tribes all have traditional and cultural ties to the project area:

- Chemehuevi Indian Tribe
- Cocopah Indian Tribe
- Colorado River Indian Tribes
- FMIT
- Fort Yuma Quechan Indian Tribe
- Hualapai Tribe
- Havasupai Tribe
- Twenty-nine Palms Band of Mission Indians
- Yavapai-Prescott Indian Tribe
- California Torres-Martinez Desert Cahuilla Indian Tribe

The Tribes believe that the area known as Topock, and specifically the immediate project area, is part of a broader cultural landscape. The Topock Remediation Project area of potential effects (APE) is within an area the BLM has determined to be a Traditional Cultural Property (TCP) or property of traditional religious and cultural significance and is eligible to be listed on the National Register of Historic Places under criterion A. It also partially lies within the Beale Slough Area of Critical Environmental Concern, as noted in the approved *Lake Havasu Resource Management Plan,* dated May 2007 (DOI 2007a).

This area is still regularly used by religious practitioners for ceremonial uses in accordance with the BLM *Tribal Access Plan*, dated November 2011 (DOI 2011a). Therefore, avoidance of the landscape that is conducive to these uses should be considered in this review. The FMIT is the nearest Tribal community with lands within this APE footprint that have been tribally designated as Preservation in accordance with the FMIT land use plan.

Representatives from the following Tribes are actively involved in project activities and are invited to monitor field work and review and comment on key project documents. These Tribes also participate in project workgroups (such as the Clearinghouse Task Force, the Consultative Work Group, and the Technical Work Group).

- Chemehuevi Indian Tribe
- Cocopah Indian Tribe
- Colorado River Indian Tribes
- FMIT
- Fort Yuma Quechan Indian Tribe
- Hualapai Tribe
- Yavapai-Prescott Indian Tribe

Throughout the process, the Tribes have supported minimizing disturbances to sensitive resources and have requested that minimal sampling be performed, only that which is necessary to characterize the Site for the RI.

The TCS compresses natural gas supplied from the southwestern United States (U.S.) for transport through pipelines to PG&E's service territory in central and northern California. From 1951 to 1985, PG&E added chromium to the water used in the cooling towers and other equipment to prevent equipment corrosion. From 1951 to 1964, untreated cooling tower wastewater containing hexavalent chromium (CrVI) was discharged into a natural wash, Bat Cave Wash, adjacent to the facility. Treated wastewater was discharged to land and later injected into the aquifer from 1964 to 1974. In the early 1970s, treated wastewater was discharged into lined ponds for storage and evaporation. Chromium use was discontinued in 1985. PG&E implemented use of a phosphate-based nontoxic additive as a replacement. It is anticipated that the TCS will remain an active facility into the foreseeable future.

Different releases to the East Ravine wash and other low-lying areas surrounding the TCS have also occurred during TCS operations that have resulted in soil contamination.

Debris disposal occurred at Debris Ravine and two other distinct debris disposal areas and consisted of materials such as:

- Construction debris
- Cans
- Tires
- Asbestos-containing material (ACM)

This debris may be sources of metals to Site soils. The burning of trash also occurred within areas inside and outside the fence line and may be a source of dioxins and furans. Water conditioning sludge was disposed in Bat Cave Wash and in other select areas outside the fence line. Other common station practices, such as the application of oil to surface soil for dust control and fire training activities, may be sources of the following constituents:

- Total petroleum hydrocarbons (TPH)
- Polycyclic aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Dioxins and furans

Investigative and remedial activities at the TCS date to the 1980s with the identification of solid waste management units (SWMUs) through a RCRA facility assessment (Kearny 1987). Closure activities associated with former hazardous waste management facilities and the former oily water treatment system at the TCS were performed between 1988 and 1993. The RFI began in 1996 with the signing of the Corrective Action Consent Agreement, and numerous phases of data collection and evaluation have been completed under the Corrective Action Consent Agreement. Since 2005, investigative and remedial activities have been performed pursuant to both RCRA corrective action and CERCLA. To date, major portions of the RFI/RI have been completed, several Interim Measures (IMs) and a groundwater remedy have been implemented, and a soil HHERA has been completed to assist risk management decision making on the need for soil remediation.

Soil sampling as part of the RFI/FI has been conducted in phases. The first phase of sampling was conducted in 2008. This was followed by data gaps analysis, which led to additional RFI/RI sampling in 2015, 2016, and 2017. Opportunistic soil sampling is also conducted during other construction activities and is ongoing. Soil removal actions have been conducted from the mid-1990s to 2020 in the following areas:

- Vicinity of the southeastern fence line
- Railroad Debris Site
- Cooling towers
- Auxiliary Jacket Cooling Water Pumps

A Time-Critical Removal Action (TCRA) was also completed in 2010 as an IM at Area of Concern (AOC) 4 - Debris Ravine. A Non-Time-Critical Removal Action (NTCRA) began in 2022 for several of the study areas and is continuing as this report is being finalized.

ES.2 Soil Investigation Program

The RFI/RI Report Volume 1 identified 19 SWMUs, AOCs, and other undesignated areas (UAs) at the TCS to be carried forward in the Soil RFI/RI. DTSC requested an additional nine previously closed areas also be further investigated. Fourteen additional units were added after the RFI/RI Report Volume 1 in the *Revised Final Addendum to the RFI/RI, Volume 1* (CH2M 2014a). All investigation areas were categorized into two groups: those outside the TCS fence line (Part A investigation units) and those inside the TCS fence line (Part B investigation units). The purpose of this categorization was to group units by their accessibility to potential receptors, which, in turn, identifies the appropriate cleanup goals and screening levels for agency consideration.

Work plans were developed and approved for the collection of additional soil data to complete Site characterization activities at the SWMUs, AOCs, and UAs identified in the RFI/RI Report Volume 1. The draft investigation work plan was initially developed as two separate documents for Part A and Part B investigation areas but was combined into a single work plan after the completion of the initial Phase 1 Part A investigation. All work plan documents were provided to agencies, Tribes, and stakeholders for review and comment before PG&E implementation.

Comments from agencies and Tribes on the work plans have been documented in official letters and correspondences and responses to comments (RTCs) (Hualapai Department of Cultural Resources 2011; Hargis and Associates 2011; DOI 2011b; DTSC 2011a). An Environmental Impact Report (EIR) was also developed and approved to inform regulatory agency decision makers and the public of the significant adverse environmental effects of the investigation of soil and sediment at the Site, and the feasible mitigation measures that may substantially reduce or avoid the significant impacts (DTSC 2015a).

The first major phase of sampling was initiated in August 2008 and included soil sampling outside of the TCS fence line (Part A) per Draft Soil Part A Work Plan (CH2M 2006). The results of the 2008 Phase 1 site investigation were presented in the Soil RFI/RI Work Plan (CH2M 2013a), and a data gaps analysis was conducted to evaluate the need for subsequent investigation. Data results were evaluated against the following DQOs for Part A:

- **Decision 1 (Nature and Extent):** Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical TCS practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or Corrective Measures Study/Feasibility Study (CMS/FS).
- **Decision 2 (Data Sufficiency Evaluation):** Determine representative exposure point concentrations (EPCs) for residual soil and/or sediment contamination resulting from historical TCS practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.
- **Decision 3 (Potential Threat to Groundwater):** Determine whether residual soil concentrations resulting from historical TCS practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.
- **Decision 4 (Data Sufficiency Evaluation):** Determine the site-specific soil property and contaminant distribution information necessary to support the CMS/FS decisions and remedial design. If full determination of site-specific soil property and contaminant distribution information based on sample data is not feasible, address uncertainties in the CMS/FS and remedial design.

The data gaps evaluation in the Soil RFI/RI Work Plan was extended to cover all new units, including the units added after the completion of the RFI/RI Report Volume 1. Of the 15 Part A investigation areas proposed, 2 were not proposed for additional investigation, and 2 were deferred (CH2M 2013a).

Part B of the soil investigation focused on 27 investigation units inside the TCS fence line and was initiated in November 2015. DQOs for Part B were the same as Decision 1-3 for Part A, with the following additional DQOs:

- **Decision 4 (Offsite Migration Assessment):** Determine whether residual soil concentrations inside the fence line resulting from past TCS practices pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway. If a potentially unacceptable risk to receptors outside fence line exists, or if determination of potential risk to receptors outside fence line based on sample data is not feasible, develop controls to eliminate migration pathways or remove contaminated soil.
- **Decision 5 (Data Sufficiency Evaluation):** Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant

distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

Data collected during the field implementation of the Soil RFI/RI Work Plan were reviewed to assess potential data gaps in meeting the project DQOs, and additional field investigations were conducted to address the data gaps in three separate investigations and work plans (CH2M 2016a-c).

Other investigation areas in this report include the Perimeter Area, the storm drain system, and TCS Well #4 (TCS-4) located in AOC 1. For Volume 3, investigation units inside the TCS fence line (Units 4.3, 4.4, and 4.5) are assessed as one unit, and the portion of AOC 4 that falls inside the TCS fence line is included in the Part B investigation unit count, for a total of 26 investigation units inside the TCS fence line.

ES.3 Data Summary and Data Quality Objective Evaluation

This volume of the RFI/RI Report considers analytical data for soil and sediment samples collected at the TCS. The data collected comprises three validated data sets:

- Data collected during implementation of the Soil RFI/RI Work Plan (CH2M 2013a) and subsequent data gap work plans (CH2M 2016a-c)
- Part A, Phase 1 soil investigation data (CH2M 2012)
- Historical data collected before 2008 (CH2M 2008b)

The resulting combined data set is referred to in this report as the Combined Soil RFI/RI Data Set. The Combined Soil RFI/RI Data Set spans a wide range of dates, analytical parameters, and data quality. This report presents sample results tables organized by unit and by appropriate analytical groups, such as metals or dioxins and furans. Data for the Part A investigation units (including Perimeter Area samples) were screened against selected residential and ecological screening levels and background (BK) values. Data for the Part B investigation units were screened against selected commercial screening levels and BK values. For AOC 4 – Debris Ravine, which is unique in that some samples fall outside the fence line and some fall inside the fence line, two sets of sample results tables are presented: one set screens outside the fence line results against the Part A Investigation screening levels, and one set screens inside the fence line results against the Part B Investigation screening levels.

In addition to the sample results tables, a Constituent Concentrations in Soil Compared to Screening Values table is presented for each unit with analytical data. These tables provide a statistical summary of the following data:

- Number of locations sampled
- Frequency of detection
- Maximum detected value
- Number of screening level exceedances for each analyte evaluated

The Combined Soil RFI/RI Data Set and soil parameter data were evaluated against the Part A and Part B DQOs. The purpose of this evaluation was to evaluate data completeness and identify the remaining data gaps to be addressed in the CMS/FS or IMs. Different data quality categories were used for the different DQOs:

- Category 1 data are suitable for all uses, including risk assessment and remedial action decisions.
- Category 2 data are suitable for use in characterization of the constituents of potential concern (COPCs) at the TCS and to help define the nature and extent of contamination.
- Category 3 data are suitable only for use in qualitative characterization of the nature and extent of contamination.

Additional data were collected to gather information on the storm drain and industrial floor drain line alignments and evaluate potential discharges from storm drains to soil.

ES.4 Remedial Investigation Summaries for Investigation Areas

Investigation summaries for the SWMUs, AOCs, and UAs in the Part A and Part B investigation areas are presented. Investigation summaries include the following information:

- Unit setting
- History
- Field observations
- Comparison of analytical data to relevant screening levels
- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs
- Updated conceptual site models

Exhibits ES-1 and ES-2 present summaries of the evaluations against each of the DQOs for the Part A and Part B investigation areas, respectively. The results of the storm drain investigation and Perimeter Area Investigation are also presented. Exhibits ES-1 and ES-2 also summarize the data gaps identified during the evaluations.

Exhibit ES-1. Summary of Findings for Part A Investigation Units
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Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for inclusion in CMS/FS	CMS/FS Action and Evaluation
SWMU 1: Former Percolation Bed	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Cobalt – Copper – CrT – Nickel – Zinc • There may be uncertainty in the lateral extent of contamination for some constituents (for example, dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.	Unacceptable risk to human recreators at sample location SWMU1-25. (Select areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** Evaluate remediation options as needed.
AOC 1: Area Around Former Percolation Bed	DQO 1 data gap: • Vertical extent not defined for total PCBs just south of the highway. • There may be uncertainty in the lateral extent of contamination for some constituents (e.g., dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.	N/A (Select areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
AOC 4: Debris Ravine	DQO 4 data gap: • No soil samples analyzed for soil physical parameters.	Soil accumulates above the dam or the gabion after rainfall events.	Yes	**Data gaps and uncertainties:** No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** • Evaluate long-term removal of accumulated sediment or long-term stabilization of area. • Measures may be considered as part of an administrative control, such as: – Signs – Fencing – Land use controls • The following activities will be included in the CMS/FS: – Long-term inspections – COPC sampling – O&M of the check-dam and gabion
AOC 9: Southeast Fence Line	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Certain metals – PAHs – PCBs – Dioxins and furans • Lateral extent not defined for dioxins and furans within AOC 9 and in depression areas across the access road from AOC 9.	Unacceptable risk to human recreators and desert shrew at sample locations: • #10 • AOC 10-20 • AOC10-21 • AOC10-23 • PA-20 • PA-21 [c] (Areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** Evaluate remediation options as needed.
AOC 10: East Ravine	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Certain metals – PAHs – TPH – Dioxins and furans DQO 4 data gap: • No soil samples analyzed for soil physical parameters.	Unacceptable risk to human recreators and desert shrew at sample locations MW-58BR_S and AOC10c-4. (Select areas within this investigation unit are addressed by the Soil NTCRA.) Presence of debris.	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** • Evaluate remediation options as needed. • Evaluate removal of hazardous debris.
AOC 11: Topographic Low Areas	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Certain metals • Dioxins and furans	(Subarea AOC 11-e is addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for inclusion in CMS/FS	CMS/FS Action and Evaluation
AOC 12: Fill Areas	DQO 4 data gap: • No soil samples analyzed for soil physical parameters. • Uncertainty whether correct location was investigated.	N/A	No	No further action. **Data gaps and uncertainties:** No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** N/A.
AOC 14: Railroad Debris Site	DQO 1 data gap: • Lateral extent not defined for the following analytes south of AOC 14-19: – Metals – Pesticides – Dioxins and furans	Presence of debris. (Select area within this investigation unit is addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** Evaluate removal of hazardous debris as needed.
AOC 27: MW-24 Bench	DQO 1 data gap: • Lateral extent not defined for PAHs and dioxins and furans along the access road. • Vertical extent not defined for lead along the access road. DQO 4 data gap: • No soil samples analyzed for soil physical parameters.	Presence of debris. (Select areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** Evaluate removal of hazardous debris as needed.
AOC 28: Pipeline Drip Legs	DQOs satisfied for existing and known drip legs. • Uncertainty whether correct location was investigated for some historical tank units.	N/A	No	No further action.
AOC 29: IM-3 Treatment Plant	DQO 1 through 4 deferred until IM-3 Treatment Plant is decommissioned.	N/A	Deferred	Deferred.
AOC 30: MW-20 Bench	DQO 1 through 4 deferred until after groundwater remedy decommissioning sampling is completed.	N/A	Deferred	Deferred.
AOC 31: Former Teapot Dome Oil Pit	DQO 4 data gap: • No soil samples analyzed for soil physical parameters. • Uncertainty regarding the location and presence of the oil pit.	N/A	No	No further action. **Data gaps and uncertainties:** No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** N/A.
UA-1: Pipeline Disposal Area	DQO 1 through 4 not investigated at request of the Tribes.	N/A	No	No further action.
UA-2: Former 300B Pipeline Drip Tank	DQO 4 data gap: • No soil samples analyzed for soil physical parameters. • A data gap for arsenic in bedrock is identified.	N/A	No	No further action. **Data gaps and uncertainties:** • No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). • Additional investigation of the bedrock data gap is not proposed at this time. **Additional considerations:** N/A.

[a] In this exhibit, "DQO" refers to the DQO Decisions, as follows:

Decision 1 (Nature and Extent Determination): Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

Decision 2 (Data Sufficiency for EPC Calculation): Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

Decision 3 (Threat to Groundwater Determination): Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

Decision 4 (Data Sufficiency to Support CMS/FS and/or IMs): Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[b] Exhibit 4-38 in Section 4.5 provides data gap details.

[c] The following sampling locations are located in AOC 10 but were used as part of the AOC 9 exposure unit in the HHERA:

- AOC 10-20
- AOC 10-21
- AOC 10-23
- PA-20
- PA-21

CrT = total chromium

IM-3 = Interim Measure Number 3

N/A = not applicable

O&M = operations and maintenance

Exhibit ES-2. Summary of Findings for Part B Investigation Units, Storm and Floor Drain Systems, and Perimeter Area
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PG&E Topock Compressor Station, Needles, California

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for Inclusion in CMS/FS	CMS/FS Action and Evaluation
SWMU 5: Sludge Drying Beds	DQOs satisfied.	N/A	No	No further action.
SWMU 6: Chromate Reduction Tank	DQOs satisfied.	N/A	No	No further action.
SWMU 8: Process Pump Tank	DQOs satisfied.	N/A	No	No further action.
SWMU 9: Transfer Pump	DQO 4 not assessed, and no surface soil samples collected.	N/A	No	No further action.
SWMU 11: Former Sulfuric Acid Tanks	DQOs satisfied.	N/A	No	No further action.
AOC 5: Cooling Tower A	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 6: Cooling Tower B	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 7: Hazardous Materials Storage Area	DQOs satisfied.	N/A	No	No further action.
AOC 8: Paint Shed	DQOs satisfied.	N/A	No	No further action.
AOC 13: Unpaved Areas within the TCS	DQO 1 data gap: • Lateral extent not defined for the following analytes along the slope between AOC 6 and the lower yard: – Multiple metals – PCBs – Dioxins and furans • Vertical extent not defined for the following analytes along the slope between AOC 6 and the lower yard: – CrVI – Lead – Dioxins and furans • Vertical extent not defined for multiple metals in the vicinity if storm drain line SDL-3. • Vertical extent not defined for multiple metals on the slope below AOC 5. • Vertical extent not defined for certain metals at specific locations in other areas of AOC 13.	Presence of debris on the slope between upper and lower yards	Yes	**Data gaps and uncertainties:** Assess need for additional soil samples, and evaluate remediation options. **Additional considerations:** Evaluate removal of hazardous debris. See Perimeter Area entry in this table for AOC 13 locations considered to be potential sources of contamination to downgradient Part A investigation units.
AOC 15: Auxiliary Jacket Cooling Water Pumps	DQO 3 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 16: Former Sandblast Shelter	DQOs satisfied.	(The area around this investigation unit is addressed by the Soil NTCRA)	No	No further action. See Perimeter Area entry in this table for AOC 16 locations considered to be potential sources of contamination to downgradient Part A investigation units.
AOC 17: Onsite Septic System	DQOs satisfied.	N/A	No	No further action
AOC 18: Combine Wastewater Transference Pipelines	DQO 1 data gap: • Lateral and vertical extent not defined in areas where pipelines are not accessible for investigation or left in place.	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A. See Perimeter Area entry in this table for AOC 18 location considered to be a potential source of contamination to downgradient Part A investigation units.
AOC 19: Former Cooling Liquid Mixing and Hotwell Area	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	Surficial contamination is present at the concrete pad of the former chemical mixing additive shed	Yes	**Data gaps and uncertainties:** Deferred. **Additional considerations:** Evaluate remediation options to address surficial contamination at the concrete pad.
AOC 20: Industrial Floor Drains	DQO 1 and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 21: Round Depression near Sludge Drying Bed	DQOs satisfied.	N/A	No	No further action. See Perimeter Area entry in this table for AOC 21 location considered to be a potential source of contamination to downgradient Part A investigation units.

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for Inclusion in CMS/FS	CMS/FS Action and Evaluation
AOC 22: Unidentified Three-Sided Structure	DQO 1 data gap: • Vertical extent not defined for the following analytes at sample location AOC22-1: – CrT – Lead	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
AOC 23: Former Water Conditioning Building	DQO 1 data gap: • Vertical extent not defined for the following analytes at sample location AOC23-3: – CrVI – Lead – Dioxins and furans	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
AOC 24: Stained Area and Former API Oil/Water Separator	DQOs satisfied. There is some uncertainty in the exact location of the AOC 24 stained horizon.	N/A	No	No further action.
AOC 25: Compressor and Generator Engine Basements	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 26: Former Scrubber Oil Sump	DQO 1 deferred: • Lateral and vertical extent not defined for VOCs in soil gas. • Installation of deeper soil vapor probes is deferred until the area becomes available for sampling.	N/A	Deferred	Deferred.
AOC 32: Oil Storage Tanks and Waste Oil Sump	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 33: Potential Former Burn Area near AOC 17	DQOs satisfied. Uncertainty on the exact location of AOC 33.	N/A	No	No further action.
Units 4.3, 4.4, and 4.5	DQOs satisfied.	N/A	No	No further action.
Portions of AOC 4 Inside the Fence Line	DQO 1 data gap: • Lateral extent not defined on eastern side of AOC 4 for the following analytes: – PAHs – PCBs – Dioxins and furans DQO 5 data gap: • No samples analyzed for soil physical parameters.	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
Potential Offsite Migration Areas[c]	N/A	Contaminant concentrations in soil in unpaved areas inside the TCS may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway	Yes	**Data gaps and uncertainties:** N/A. **Additional Considerations:** Evaluate measures for the control and prevention of migration of soil from unpaved areas inside the TCS fence line to outside the TCS fence line.
Storm Drain System	DQO 1 data gap: • Vertical extent not defined for the following analytes at SD-08: – CrVI – Copper • Vertical extent not defined for the following analytes at SD-02: – Metals: ✓ Copper ✓ CrVI ✓ CrT ✓ Lead ✓ Mercury – B(a)P equivalents – HMW PAHs – TPH-d	• Presence of damaged pipes • Presence of potential pathway from inside to outside the TCS fence line (Select areas within the Storm Drain System are addressed by the Soil NTCRA)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** • Evaluate measures to repair damaged portions of the Storm Drain System • Evaluate implementation of storm drain monitoring, regular cleaning, and stormwater BMPs.

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for Inclusion in CMS/FS	CMS/FS Action and Evaluation
Perimeter Area [d] Associated with AOC 1: • PA-02 • AOC13-19 • AOC13-20 • AOC13-21 • PA-15 • AOC16-4 • AOC16-grit • AOC18-11 • AOC21-OS2 Associated with AOC 10: • PA-18 • PA-19 • PA-20 • PA-21 • AOC22-3 Associated with AOC 11: • SD-24 • PA-09 • PA-10 • PA-11 • PA-12	N/A	The Perimeter Area is a potential source of contamination to downgradient Part A investigation units. (Select areas within the Perimeter Area are addressed by the Soil NTCRA)	Yes	**Data gaps and uncertainties:** N/A. **Additional Considerations:** Evaluate runoff and erosion control measures and removal of contaminated soil.

[a] For this exhibit, “DQO” refers to the DQO Decisions, as follows:

Decision 1 (Nature and Extent Determination): Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

Decision 2 (Data Sufficiency for EPC Calculation): Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

Decision 3 (Threat to Groundwater Determination): Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

Decision 4 (Offsite Migration Assessment): Determine whether residual soil concentrations inside the fence line resulting from past compressor station practices pose a potentially unacceptable risk to receptors outside the compressor station fence line via the surface migration pathway. If a potentially unacceptable risk to receptors outside fence line exists, or if determination of potential risk to receptors outside fence line based on sample data is not feasible, develop controls to eliminate migration pathways or remove contaminated soil.

Decision 5 (Data Sufficiency to Support CMS/FS and/or IMs): Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[b] Exhibit 4-38 in Section 4.5 provides data gap details.

[c] Investigation units in the Potential Offsite Migration Areas with potentially unacceptable risk via the surface migration pathway are:

- AOC 4
- AOC 7
- AOC 8
- AOC 13
- AOC 16
- AOC 18
- AOC 21
- AOC 22
- SWMU 5

[d] Sample locations are assigned to the downgradient investigation units.

API = American Petroleum Institute

B(a)P = benzo(a)pyrene

BMP = best management practice

HMW = high molecular weight

TPH-d = total petroleum hydrocarbons as diesel

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ES.5 PG&E's Risk Assessment

A Soil HHERA was completed for the TCS site in October 2019 (Arcadis 2019) with the following objectives:

- Help determine the need for remedial action with respect to soil conditions
- Provide a basis for determining levels of constituents that can remain in soil at the TCS site and still be adequately protective of public health and the environment

Risk-based concentrations (RBCs) were also developed and presented in Appendix RBC of the HHERA. The RBCs were developed for the Soil Management Plan to be used to support decisions for the handling, management, and storage of potentially contaminated and displaced soil during implementation of a groundwater remedy at the Site to address chromium contamination in groundwater.

The Soil HHERA was conducted using methodology presented in the associated agency-approved HHERA Work Plans (Arcadis 2008a, 2009a, 2015) and included evaluating all constituents evaluated during the RFI/RI soil investigations to identify COPCs and constituent of potential ecological concern (COPECs) that could potentially pose an unacceptable risk to human health or the ecological environment.

Data used for the Soil HHERA were in the highest quality category (Category 1). Data were grouped into data sets by individual potential exposure areas (for example, Bat Cave Wash or AOC 10) and into combined exposure areas (for example, all exposure areas outside the TCS fence line). Data for each potential exposure area were also grouped according to exposure depth. Additionally, for the two soil potential exposure areas encompassing wash areas (Bat Cave Wash and AOC 10), two scouring scenarios were evaluated.

Several complete pathways of exposure to COPCs or COPECs are present at the TCS site, both now and potentially in the future. The Soil HHERA generally found no unacceptable risk for most human and ecological receptors. Of the potential human receptors, based on the exposure scenario defined in the HHERA work plan, no unacceptable risk was identified for all relevant potential exposure areas for the following receptors:

- Tribal users
- Hunters
- Commercial and short- and long-term maintenance workers

Of the potential ecological receptors, no unacceptable risk was identified for all relevant potential exposure areas for the following receptors:

- Special-status species
- Large home-range receptors
- Herbivorous and insectivorous birds
- Herbivorous small mammals

The Soil HHERA (Arcadis 2019) presents risk-based remedial goals (RBRGs) for COPCs and COPECs in soil that most significantly contribute to estimates of unacceptable risk to human health or ecological receptors (that is, "risk drivers" or constituents of concern [COCs]). The RBRGs were used to identify the locations associated with unacceptable risk and risks exceeding de minimis levels for consideration in remedial decision-making. The potential for unacceptable risk was identified for the following receptors:

- Camper
- Hiker

- Off-highway vehicle (OHV) rider[1]
- Desert shrew

In areas within SWMU 1, AOC 9, and AOC 10, risk was driven by a limited number of compounds for human health:

- Dioxins and furans toxicity equivalent [TEQ]
- CrVI

And for ecological receptors:

- Dioxins and furans TEQ
- CrT
- Copper

The Soil HHERA notes that the locations identified using this approach are intended to help focus remedial planning efforts on those areas and COPCs and COPECs that contribute most significantly to levels of calculated unacceptable risk for ecological receptors and risks exceeding de minimis levels for potential human receptors. The overall results of the Soil HHERA support the conclusion that focusing remedial planning on these locations, as demonstrated by the hypothetical remediation, should be effective in reducing overall calculated risks to levels that are protective of human health and potential ecological receptors.

ES.6 Conclusions and Recommendations

This Volume 3 RFI/RI Report considers analytical data for soil and sediment samples collected at the TCS. The data collected comprise multiple validated data sets referred to in this report as the Combined Soil RFI/RI Data Set, which spans a wide range of dates, analytical parameters, and data quality. The Combined Soil RFI/RI Data Set was evaluated against the Part A and Part B DQOs for the appropriate investigation areas and units at the Site.

The evaluation indicates that DQOs have been satisfied for all investigation areas but also identifies some areas where full nature and extent of contamination is not feasible or warranted to determine at this time. Although the DQOs have been satisfied for many of the investigation areas, there are active, operational areas that will be evaluated in the future through the corrective action process for the soil investigation to be completed. These may include newly identified AOCs as well as areas with active operations, including beneath the Compressor Building, IM-3 treatment plant, and MW-20 Bench, and beneath other structures onsite currently in use by PG&E. As determined necessary to inform specific decisions related to the CMS/FS, IMs, and remediation, uncertainties regarding the nature and extent of impacts can be addressed during future CMS/FS or remediation activities.

The Soil HHERA determined that there is minimal unacceptable risk to most human and ecological receptors exposed to COPCs and COPECs in soil at the Site, both within the TCS and exposure areas

[1] Note that to address the Tribes' comments on the HHERA exposure assumptions for the recreational users and that due to the physical and topographical barriers that exist at the TCS site, certain recreational activities are unlikely to occur, the following statements were included in Section 5.6.3.2 of the HHERA, "In addition, as recommended by DOI (Arcadis 2015), it is assumed that each of the recreational activities could take place at any location on federal land. In reality, specific locations may be preferred for certain activities, while other locations may be less attractive or may have limited recreational options. No physical barrier (such as fencing) is present that would stop an individual recreational user from accessing any and all areas of the AOCs outside the TCS. Therefore, potential receptor populations would more likely be exposed randomly, over the course of a lifetime, to soils present across the OCS [outside the compressor station] potential exposure area, rather than have a lifetime of contact limited to a potential exposure area based on an individual AOC (as evaluated in the area-specific appendices at the request of DTSC)." Also as stated in Section 5.6.3.2 of the HHERA, "The exposure time, frequency, and duration for the recreational user provided by DOI and used in the HHRA erred on the side of conservatism to be protective of human health and may not represent "reasonably anticipated use" of the site. Therefore, the health risks estimated for recreational users may be overestimated and lower than presented in the HHRA.… In sum, the risk assessment meets the regulatory requirement to address an upper bound for potential exposures for current and reasonably foreseeable future receptor populations; the actual exposures to soil at the site that could be incurred by workers, recreators, and tribal use would probably be much lower than has been estimated in this HHRA."

outside the TCS. Estimated risks were determined to be acceptable for all relevant exposure areas for most human and ecological receptors.

The potential for unacceptable risk was identified for the following receptors:

- Camper
- Hiker
- OHV rider
- Desert shrew

In areas within SWMU 1, AOC 9, and AOC 10, risk was driven by a limited number of compounds for human health:

- Dioxin TEQ
- CrVI

And for ecological receptors:

- Dioxin TEQ
- CrT
- Copper

Focusing remedial planning on these locations will be effective in reducing overall risks to levels that are protective of human health and ecological receptors. It is recommended that these areas be carried forward into the CMS/FS or mitigated through IMs.

In addition to the areas identified within the Soil HHERA, several unpaved areas inside the TCS have surficial contaminant concentrations in soil that may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway. Additional evaluation of measures for the control and prevention of migration of soil from inside the TCS fence line to outside the TCS fence line is recommended. Exhibits ES-1 and ES-2 list the areas that may be considered for inclusion in the CMS/FS.

Under direction of the DOI, an Engineering Evaluation (EE) and Cost Analysis (CA) has been prepared to evaluate the need for potential removal action in areas with significant contaminant concentrations outside of the TCS, including the locations identified in the Soil HHERA as contributing to unacceptable risk (DOI 2018). A draft EE/CA report was made available for public, agency, and stakeholder review and comment, and Tribal consultation on May 29, 2020. The public review period ended on August 5, 2020.

Tribal consultation on the draft EE/CA was requested by the Tribes in 2018; official consultation with the Tribes began August 11, 2020, and continued through April 8, 2021. DOI reviewed and considered stakeholder and Tribal comments on the draft EE/CA and directed PG&E to prepare a final EE/CA document. DOI issued an NTCRA Action Memorandum on October 12, 2021 (DOI 2021b). DOI directed PG&E to prepare a detailed work plan for implementation of DOI's selected NTCRA alternative. The NTCRA Work Plan public and stakeholder comment period and Tribal Consultation Period was November 1 through December 20, 2021.

Implementation of the NTCRA began July 2022 and is ongoing as this document is being prepared. As of June 2023, removal actions have been completed in AOC 11 and most of AOC 10.

Upon completion of the NTCRA, a Completion Report will be prepared and will include a description of the volume and disposition of materials removed, figures showing the extent of the excavation and soil sample locations, and tables listing soil sample confirmation screening results. Final confirmation sample results will be used to recalculate the post-removal action risk at the Site. The Sitewide data set used in the Soil HHERA will be revised to reflect Site conditions after the NTCRA. Revised HHERA findings will be incorporated into the overall remedial planning and decisions for soil at the TCS site. An RFI/RI Addendum, an HHERA Addendum, or both may be warranted to summarize conditions before cleanup actions at the Site.

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Figure 4-28e Engineering Drawing No. 481755, Rev. 7 (1953), AOC 25
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Figure 4-29a Conceptual Site Model, AOC 26
Figure 4-29b Cross Section Showing Hexavalent Chromium Results, AOC 26
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Figure 4-30b Engineering Drawing No. 481777, Rev. 3 (1951), AOC 32

Acronyms and Abbreviations

Acronym	Definition
µg/kg	microgram(s) per kilogram
µg/m^3	microgram(s) per cubic meter
95UCL	95% upper confidence limit
ACA	Administrative Consent Agreement
ACM	asbestos-containing material
AJCW	auxiliary jacket cooling water
amsl	above mean sea level
AOC	area of concern
APE	area of potential effects
API	American Petroleum Institute
AST	aboveground storage tank
ATV	ambient threshold value
BAF	bioaccumulation factor
B(a)P	benzo(a)pyrene
bgs	below ground surface
BK	background
BLM	U.S. Bureau of Land Management
BMP	best management practice
BNSF	BNSF Railway
BOR	U.S. Bureau of Reclamation
bss	below sediment surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CA	Cost Analysis
Caltrans	California Department of Transportation
CB	catch basin
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHHSL	California Human Health Screening Level
CLP	Contract Laboratory Program
CMS	Corrective Measures Study
COC	constituent of concern
COPC	constituent of potential concern
COPEC	constituent of potential ecological concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon

Acronym	Definition
CPVC	chlorinated polyvinyl chloride
CrIII	trivalent chromium
CrT	total chromium
CrVI	hexavalent chromium
CSL	commercial screening level
CSM	conceptual site model
DGWP-01	Topock Soil RFI/RI—Plan to Address Data Gaps Identified during Work Plan Implementation (CH2M 2016a)
DGWP-02	Topock Soil RFI/RI—Plan to Address Data Gaps Identified during Work Plan Implementation (CH2M 2016b)
DGWP-03	Topock Soil RFI/RI—Plan to Address Data Gaps Identified during Work Plan Implementation (CH2M 2016c)
DOI	U.S. Department of the Interior
Draft Soil Part A Work Plan	Draft RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan Part A, PG&E Topock Compressor Station, Needles, California (CH2M 2006)
Draft Soil Part B Work Plan	Draft RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan Part B, PG&E Topock Compressor Station, Needles, California (CH2M 2007b)
DQO	data quality objective
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC screening level
E&E	Ecology & Environment, Inc.
ECV	ecological comparison value
EE	Engineering Evaluation
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
ESL	environmental screening level
Final TCRA Work Plan	Final Work Plan for Time-Critical Removal Action at AOC 4 Debris Ravine, PG&E Topock Compressor Station, Needles, California (Alisto et al. 2009)
FOE	factor of exceedance
FMIT	Fort Mojave Indian Tribe
FS	Feasibility Study
ft^3	cubic foot (feet)
gpd	gallon(s) per day
gpm	gallon(s) per minute
GPR	ground-penetrating radar

Acronym	Definition
HERO	Human and Ecological Risk Office
HHERA	human health ecological risk assessment
HHRA	human health risk assessment
HMW	high molecular weight
HNWR	Havasu National Wildlife Refuge
HQ	hazard quotient
I-40	Interstate 40
IDW	investigation-derived waste
ILCR	incremental lifetime cancer risk
IM	Interim Measure
IM-1	Interim Measure No. 1
IM-2	Interim Measure No. 2
IM-3	Interim Measure No. 3
IRZ	In situ Reactive Zone
ISL	interim screening level
J	analyte was present, but reported value may not be accurate or precise because one or more quality control specifications were not met, or concentration is greater than the method detection limit but less than the project quantitation limit
JCW	jacket cooling water
LOAEL	lowest observable adverse effect level
LMW	low molecular weight
MEK	methyl ethyl ketone
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
MoO_4	molybdate
MWD	Metropolitan Water District of Southern California
NCP	National Contingency Plan
ND	nondetect
ng/kg	nanogram(s) per kilogram
ng/kg-day	nanogram(s) per kilogram per day
ng/kg-bw/day	nanogram(s) per kilogram body weight per day
No.	number
NTCRA	non-time-critical removal action
NTH	National Trails Highway
O&M	operations and maintenance
OHV	off-highway vehicle
OWS	oil/water separator

Acronym	Definition
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PG&E	Pacific Gas and Electric Company
PID	photoionization detector
PMP	Performance Monitoring Program
ppm	part(s) per million
project	Topock Remediation Project
PVC	polyvinyl chloride
QC	quality control
RAG	removal action goal
RAO	remedial action objective
RAWP	Risk Assessment Work Plan
RBC	risk-based concentration
RBRG	risk-based remedial goal
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RI	remedial investigation
ROW	right-of-way
RRSL	residential regional screening level
RSL	regional screening level
RTC	response to comments
RWQCB	California Regional Water Quality Control Board
SD	storm drain outfall
Site	Topock Compressor Station site
Soil Investigation EIR	*PG&E Topock Compressor Station Soil Investigation Project Final Environmental Impact Report*
Soil Management Protocol	*Management Protocol for Handling and Disposition of Displaced Site Material, Topock Remediation Project, Needles, CA of the Soil RCRA Facility Investigation/ Remedial Investigation Work Plan* (PG&E 2012)
Soil Part A DQOs TM	*Data Quality Objectives Technical Memorandum – Part A Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (CH2M 2010)
Soil Part A Work Plan	Draft RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan, Part A, PG&E Topock Compressor Station, Needles, California (CH2M 2006)
Soil Part B DQOs TM	*Data Quality Objectives – Part B Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (CH2M 2011b)
SSL	soil screening level

Acronym	Definition
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAA	Target Action Area
TCDD TEQ	dioxin toxicity equivalence
TCLP	toxicity characteristic leaching procedure
TCP	Traditional Cultural Property
TCRA	time-critical removal action
TCS	Topock Compressor Station
TCS-4	TCS Well #4
TDL	trench drain line
TDS	total dissolved solids
TEC	threshold effect concentration
TEQ	toxicity equivalent
TM	technical memorandum
TPH	total petroleum hydrocarbon
TPH-d	total petroleum hydrocarbons as diesel
TPH-mo	total petroleum hydrocarbons as motor oil
Trident	Trident Environmental Consultants
TRPH	total recoverable petroleum hydrocarbons
TRV	toxicity reference value
TTLC	total threshold limit concentration
U.S.	United States
UA	undesignated area
UTL	upper tolerance limit
UU	undifferentiated utility
VOC	volatile organic compound
WET	California Waste Extraction Test
WRCB	California Water Resource Control Board
XRF	x-ray fluorescence
yd^3	cubic yard(s)

1. Introduction

Pacific Gas and Electric Company (PG&E) is conducting investigative and remedial activities at the Topock Compressor Station (TCS) located in San Bernardino County approximately 15 miles to the southeast of Needles, California. These activities, referred to as the Topock Remediation Project (project), are being carried out as directed by the California Department of Toxic Substances Control (DTSC) and U.S. Department of the Interior (DOI) under the authority of Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In February 1996, PG&E and DTSC entered into a Corrective Action Consent Agreement pursuant to Section 25187 of the California Health and Safety Code (DTSC 1996). In July 2005, PG&E and the federal agencies entered into an Administrative Consent Agreement (ACA) (DOI 2005). Under the terms of the Corrective Action Consent Agreement and ACA, PG&E agreed to conduct the RCRA facility investigation (RFI) and CERCLA remedial investigation (RI) to identify and evaluate the nature and extent of contamination at the TCS.

This report is the final volume in a three-volume RFI/RI Report detailing these findings. The previous volumes are:

- *Revised Final RCRA Facility Investigation and Remedial Investigation Report, Volume 1 – Site Background and History* (CH2M 2007a)
- *Revised Final RCRA Facility Investigation/Remedial Investigation Report, PG&E Topock Compressor Station Needles, California, Volume 2 – Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation* (CH2M 2009a)

Addenda and supplemental documents to the Volume 1 and 2 reports are mentioned in Section 1.3.2.

1.1 Purpose of Report

This Volume 3 Soil RFI/RI Report presents the soil characterization results for all areas of the TCS site, including:

- Areas outside the TCS fence line fence line (Part A investigation areas)
- Areas inside the TCS fence line (Part B investigation areas)
- Perimeter areas adjacent to the TCS fence line
- Storm drains leading from the TCS to areas outside the TCS fence line

An initial draft Volume 3 Soil RFI/RI Report was submitted to DOI, DTSC, and Stakeholders for review on December 9, 2019. Comments on the initial draft Volume 3 RFI/RI Report were received from the following entities:

- DOI
- DTSC
- Fort Mojave Indian Tribe (FMIT)
- Fort Yuma Quechan Indian Tribe
- Cocopah Indian Tribe
- Metropolitan Water District of Southern California (MWD)

A response to comments (RTC) table (Appendix J), a revised Table of Contents on a proposed restructured Volume 3 report, and a draft example summary report section for the SWMU 1 and AOC 1 investigation area was prepared and sent to Agencies and Stakeholders on October 30, 2020. A comment resolution meeting was held on December 9, 2020. A revised draft Volume 3 Soil RFI/RI Report was submitted to Agencies and Stakeholders on May 28, 2021. Comments on the revised draft were received from the following entities:

- DOI
- DTSC

- FMIT
- Fort Yuma Quechan Indian Tribe
- Cocopah Indian Tribe
- TRC
- MWD

An RTC table (Appendix K) was prepared, and comment resolution meetings were held on February 9, 10, 17, and 18, 2022. A second revised draft Volume 3 Soil RFI/RI Report was submitted to Agencies and Stakeholders on September 30, 2022. Comments on the second revised draft were received from the following entities:

- DOI
- DTSC
- California Regional Water Quality Control Board (RWQCB)

An RTC table (Appendix L) was prepared, and comment resolution meetings were held on July 12, 13, and 27, 2023 and August 1, 2023.

This revised Volume 3 RFI/RI Report incorporates the comments and comment responses as presented in the updated RTC tables, located in Appendices J, K, and L of this revised report.

1.2 Site Location and Description

The PG&E TCS is located in eastern San Bernardino County, California, approximately 15 miles southeast of Needles, California, south of Interstate 40 (I-40), in the northern end of the Chemehuevi Mountains. It is located approximately 2,000 feet from the California-Arizona state border and approximately 1,500 feet from the Colorado River (Figure 1-1; figures and tables are presented at the end of this document). The TCS is currently surrounded by fencing and security gates that limit accessibility.

1.2.1 Topock Compressor Station History and Operations

The TCS began operations in December 1951. The station compresses natural gas supplied from the southwestern United States (U.S.) for transport through pipelines to PG&E's service territory in central and northern California. As natural gas is compressed at the TCS, its temperature increases, and it must be cooled. From 1951 to 1985, PG&E added chromium to the water used in the cooling towers and other equipment to prevent equipment corrosion. From 1951 to 1964, untreated cooling tower wastewater containing hexavalent chromium (CrVI) was discharged into a natural wash, Bat Cave Wash, adjacent to the facility. Treated wastewater was discharged to land and later injected into the aquifer from 1964 to 1974. In the early 1970s, treated wastewater was discharged into lined ponds for storage and evaporation. Chromium use was discontinued in 1985. PG&E implemented use of a phosphate-based nontoxic additive as a replacement.

Additional waste disposal practices that were implemented included:

- Burning of waste
- Use of wastewater injection wells
- Onsite and offsite waste and sludge disposal
- Oiling of roads for dust suppression

Different releases to the East Ravine wash and other low-lying areas surrounding the station have also occurred during TCS operations that have resulted in soil contamination.

Debris disposal occurred at Debris Ravine and two other distinct debris disposal areas and consisted of materials, such as:

- Construction debris
- Cans
- Tires
- Asbestos-containing material (ACM)

This debris may be sources of metals to Site soils.

Trash burning also occurred within areas inside and outside the fence line and may be a source of dioxins and furans. Water conditioning sludge was disposed in Bat Cave Wash and in other select areas outside the TCS fence line. Other common station practices, such as the application of oil to surface soil for dust control and fire training activities, maybe be sources of the following compounds:

- Total petroleum hydrocarbons (TPH)
- Polycyclic aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Dioxins and furans

Other than changes in general waste management and pollution prevention activities that have evolved with industry practice, current operations at the TCS are similar to the operations that occurred from the start of facility operations in 1951. The operations at the TCS consist of:

- Water conditioning
- Compression of natural gas
- Cooling of the compressed natural gas and compressor lubricating oil
- Wastewater treatment (primarily treatment of discharge from cooling tower blowdown, and treatment of discharge from facility operations and maintenance [O&M] activities)
- Facility and equipment maintenance
- Miscellaneous operations

Section 4 provides additional operations and associated waste management details.

It is anticipated that the TCS will remain an active facility into the foreseeable future. The main structures at the TCS currently include the following:

- Compressor Building
- Cooling Towers A and B
- Auxiliary Building (Figure 1-2)

Various auxiliary structures are adjacent to or near the main structures, including:

- An office
- A warehouse
- A vehicle garage
- Maintenance buildings
- Equipment and chemical storage buildings
- A water softening building

The facility also has aboveground storage tanks (ASTs) used to store the following liquids:

- Water
- Water treatment chemicals
- Odorant
- New and used compressor oil
- Gasoline and diesel
- Wastewater

All of these structures are located within a fence that surrounds the TCS.

1.2.2 Land Ownership

The TCS occupies approximately 15 acres of a 65-acre parcel of PG&E-owned land. The TCS property is immediately surrounded by the land of the Havasu National Wildlife Refuge (HNWR). Before construction of the TCS in 1951, the surrounding area was largely undeveloped land. The Teapot Dome restaurant and gas station occupied a small portion of the property at the very northern edge of the facility. The property on which the TCS was built was owned by the State of California. PG&E leased the property from the State from 1951 until 1965, when PG&E purchased the property from the State.

Figure 1-3 shows land ownership near the TCS. The surrounding area includes land owned or managed by a number of government agencies and private entities, including the following:

- U.S. Bureau of Land Management (BLM)
- U.S. Bureau of Reclamation (BOR)
- U.S. Fish and Wildlife Service (FWS)
- San Bernardino County
- California Department of Transportation (Caltrans)
- BNSF Railway (BNSF)
- MWD
- FMIT

1.2.3 Land Use and Nearby Communities and Development

The TCS is located in a sparsely populated, rural area. The surrounding land lies within an area of significant cultural, archaeological, and historical resources. Land uses near the TCS are predominantly open space, interspersed with industrial facilities, recreational uses, and transportation infrastructure. Open space near the TCS is characterized primarily by sparse desert vegetation on steep, rocky slopes. The area is bisected by several steep-sided ephemeral streams, including Bat Cave Wash and several unnamed washes that flow north to the confluence of the Colorado River. Open space on the California portion of the Colorado River floodplain is characterized predominantly by shifting sand dunes and associated riparian vegetation, primarily non-native tamarisk (salt cedar).

The nearest communities include a few residents at Topock, Arizona as well as mobile home parks at Topock, Arizona and Moabi Regional Park, California, as shown on Figure 1-4; the Pirate Cove development in Moabi Regional Park recently expanded into a resort and has become a popular attraction for recreational boaters. Similarly, recent upgrades at the Topock Marina have made it a popular tourist destination. Topock is located on the Arizona (or eastern) side of the Colorado River, about 0.5 mile east-northeast of the TCS. Moabi Regional Park is located on the California (or western) side of the Colorado River about 1 mile northwest of the TCS. The community of Golden Shores, the largest nearby community, is approximately 5 miles north of the TCS on the eastern side of the Colorado River.

A major gas utility and transportation corridor is located within the project site. This corridor includes six natural gas transmission pipelines, a BNSF line, and the I-40 freeway. Figure 1-4 shows other developed land uses within the project site; these include National Trails Highway (NTH), former Route 66, and various unnamed access roads. A BOR gravel quarry is located approximately 1,500 feet southwest of the TCS. Evaporation ponds associated with TCS operations are located approximately 3,000 feet west of the TCS. In addition, an interim remedial measures groundwater treatment plant and numerous groundwater wells related to the ongoing groundwater investigation and remedial activities are located at the Site.

Section 1.3.3.3 describes the groundwater Interim Measures (IMs), and Section 1.3.5 describes the final groundwater remedy construction. Figure 1-4 shows the TCS project area and infrastructure described in this section (though the recently installed groundwater remedy infrastructure is not shown on Figure 1-4).

1.2.4 Cultural Significance

The following Native American Tribes all have traditional and cultural ties to the project area:

- Chemehuevi Indian Tribe
- Cocopah Indian Tribe
- Colorado River Indian Tribes
- FMIT
- Fort Yuma Quechan Indian Tribe
- Hualapai Tribe
- Havasupai Tribe
- Twenty-nine Palms Band of Mission Indians
- Yavapai-Prescott Indian Tribe
- California Torres-Martinez Desert Cahuilla Indian Tribe

The Tribes believe that the area known as Topock, and, specifically, the immediate project area, is part of a broader cultural landscape. The Topock Remediation Project area of potential effects (APE) is within an area the BLM has determined to be a Traditional Cultural Property (TCP) or property of traditional religious and cultural significance and is eligible to be listed on the National Register of Historic Places under criterion A. It also partially lies within the Beale Slough Area of Critical Environmental Concern, as noted in the approved *Lake Havasu Resource Management Plan,* dated May 2007 (DOI 2007a).

This area is still regularly used by religious practitioners for ceremonial uses in accordance with the BLM *Tribal Access Plan,* dated November 2011 (DOE 2011). Therefore, avoidance of the landscape that is conducive to these uses should be considered in this review. The FMIT is the nearest Tribal community with lands within this APE footprint that have been tribally designated as Preservation in accordance with the FMIT land use plan.

Representatives from the following Tribes are actively involved in project activities and are invited to monitor field work and review and comment on important project documents:

- Chemehuevi Indian Tribe
- Cocopah Indian Tribe
- Colorado River Indian Tribes
- FMIT
- Fort Yuma Quechan Indian Tribe
- Hualapai Tribe
- Yavapai-Prescott Indian Tribe

These Tribes also participate in project workgroups, such as:

- Clearinghouse Task Force
- Consultative Work Group
- Technical Work Group

Throughout the process, the Tribes have supported minimizing disturbances to sensitive resources and have requested that minimal sampling be performed (only what is necessary to characterize the Site for the RI).

1.3 History of Investigative and Remedial Activities

Investigative and remedial activities at the TCS date to the 1980s, with the identification of solid waste management units (SWMUs) through a RCRA facility assessment. Closure activities associated with former hazardous waste management facilities and the former oily water treatment system at the TCS were performed between 1988 and 1993. The RFI began in 1996, with the signing of the Corrective Action Consent Agreement, and numerous phases of data collection and evaluation have been completed under the agreement. Since 2005, investigative and remedial activities have been performed pursuant to both RCRA corrective action and CERCLA.

To date, major portions of the RFI/RI have been completed, several soil and groundwater IMs and a groundwater remedy have been implemented, and a Soil Human Health and Ecological Risk Assessment (HHERA) has been completed to assist risk management decision making on the need for soil remediation. The status of the investigative and remedial activities are summarized briefly in this section.

1.3.1 Incidental Release History

During the operational history of the TCS, some incidental releases of chemicals or waste products have occurred. When incidental releases occurred, the proper authorities were notified, and the releases were cleaned up. Although the investigation and cleanup of incidental releases has not been performed under the RFI, the reporting of releases is required under the terms of the Corrective Action Consent Agreement (DTSC 1996). These incidental releases were reported to the appropriate regulatory agency (as described for each release in this section). These minor cleanup activities are typically performed as maintenance activities and do not require, nor have they received, agency approval.

Multiple incidental releases through 2023 have been documented at the facility since 1995, as summarized in Table 1-1. Releases through April 2023 with known locations are shown on Figures 1-5a and 1-5b. Although the Site history has been extensively researched, quantities, precise dates, and follow-up information regarding spills that may have occurred before 1995 are generally not available.

Mercury was historically used in some monitoring instruments (for example, manometer, thermometer, and flow meters). In the 1960s, when mercury-containing equipment was in use, station employees would reportedly periodically empty the meters, clean the mercury to remove accumulated debris, and then refill the meters with mercury. The facility reportedly maintained approximately 40 to 50 pounds of mercury onsite (Russell, pers. comm. 2006b).

All mercury-containing equipment was removed from service beginning in the 1980s. In addition to the 1995 mercury spill described in Table 1-1, past employees recalled two mercury spills: a spill at the machine shop that consisted of 15 to 20 pounds of mercury, and a spill at the meter building in the lower yard that reportedly entered a drain that leads to Bat Cave Wash (Bezanson, pers. comm. 2006).

1.3.2 RCRA Facility Investigation and Remedial Investigation

Since the signing of the Corrective Action Consent Agreement in 1996, there have been multiple phases of investigation at the TCS site to collect data to evaluate the nature and extent of contamination at the SWMUs, areas of concern (AOCs), and undesignated areas (UAs).

As directed by DTSC (DTSC 2006), the Final RFI/RI Report has been separated into three volumes. This separation is intended to efficiently manage the large amount of information associated with the RFI/RI, and to accelerate Site remediation by allowing earlier remediation of the groundwater plume. The following is a brief description of each volume:

- **RFI/RI Report Volume 1 — Site Background and History**. The *Revised Final RCRA Facility Investigation and Remedial Investigation Report, Volume 1 – Site Background and History* (CH2M 2007a) was completed in August 2007 and approved by DTSC (2007) and DOI (2007b). Volume 1 of the RFI/RI Report identifies the 20 SWMUs, AOCs, and other UAs at the TCS to be carried forward in the Final RFI/RI.

  An addendum to the RFI/RI Report Volume 1 was completed in May 2014 (CH2M 2014a). It provides additional Site background and history information for SWMUs and AOCs that were identified before the original RCRA facility assessment. The addendum was approved by DTSC (2014) and DOI (2014) in 2014.

  RFI/RI Volume 1 and the Volume 1 Addendum presented background and history information as it was known at the time. PG&E will continue to document any new units discovered in the future and promptly notify agencies regarding the discovery.

- **RFI/RI Report Volume 2 — Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation.** The *Revised Final RCRA Facility Investigation/Remedial Investigation*

Report, PG&E Topock Compressor Station Needles, California, Volume 2 – Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation (CH2M 2009a) and its addendum were completed in February and June 2009, respectively. They were approved by DTSC (2009) and DOI (2009a). This document completes the RFI/RI requirements for groundwater impacts associated with the past discharge of wastewater to Bat Cave Wash (SMWU 1 and AOC 1) and injection well PGE-8 (SWMU 2). It contains information about the hydrogeologic characterization and results of groundwater, surface water, pore water, and river sediment investigations to evaluate and characterize the nature and extent of groundwater contamination resulting from past discharge of wastewater from the TCS.

Additionally, the *Summary of Findings Associated with the East Ravine Groundwater Investigation* (CH2M 2009d) and its addendum (CH2M 2013b) were completed in October 2009 and June 2013, respectively. The reports document the groundwater investigation and associated activities in the ravine area east of the TCS designated as AOC 10, and contain the results of drilling, well installation, and initial groundwater sampling to refine the understanding of regional hydrogeology and groundwater occurrence in bedrock, and to characterize the nature and extent of contamination in groundwater.

- **RFI/RI Report Volume 3 — Results of Soil and Sediment Investigation.** Volume 3 of the RFI/RI Report (this document) includes final characterization data for all but nine investigation units to complete the RFI/RI requirements for remaining TCS operations, including the results of soil investigations and the storm drain alignment investigation. The RFI/RI has not concluded unit investigations in areas that are inaccessible or have active Site activities preventing investigation. These areas will be evaluated in the future through the RCRA corrective action process and the CERCLA remedial process. The areas with incomplete evaluations include:
  - AOC 5 and AOC 6: Cooling Towers A and B
  - AOC 19: Former Cooling Liquid Mixing and Hotwell Area
  - AOC 20: Industrial Floor Drains
  - AOC 25: Compressor and Generator Engine Basements
  - AOC 26: Former Scrubber Oil Sump
  - AOC 29: Interim Measure Number (No.) 3 Treatment Plant
  - AOC 30: MW-20 Bench
  - AOC 32: Oil Storage Tanks and Waste Oil Sump

Exhibit 1-1 shows the estimated timelines for availability and estimated timelines for availability.

Exhibit 1-1. Description of RFI/RI Investigation Unit Access Constraints and Estimated Timelines for Availability
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Investigation Unit	Access Constraint	Estimated Timeline for Investigation Unit Availability
AOC 5 and AOC 6: Cooling Towers A and B	• Substantial access constraints • Unit in active operation • Active underground utilities • Other physical dangers	Unknown; when the unit is no longer needed for operations or when the TCS is no longer active
AOC 19: Former Cooling Liquid Mixing and Hotwell Area	• Substantial access constraints • Unit in active operation • Active underground utilities • Other physical dangers	Unknown; when the unit is no longer needed for operations or when the TCS is no longer active
AOC 20: Industrial Floor Drains	• Substantial access constraints (e.g., compressors located above drains) • Active use of buildings • Physical dangers	Unknown; when the unit is no longer needed for operations or when the TCS is no longer active
AOC 25: Compressor and Generator Engine Basements	• Substantial access constraints • Unit in active operation • Active underground utilities • Other physical dangers	Unknown; when the unit is no longer needed for operations or when the TCS is no longer active

Investigation Unit	Access Constraint	Estimated Timeline for Investigation Unit Availability
AOC 26: Former Scrubber Oil Sump	• Presence of multiple underground utilities, including high-pressure gas pipelines to the south and west of the former scrubber sump excavation area	Unknown; when the unit is no longer needed for operations or when the TCS is no longer active
AOC 29: Interim Measure No. 3 Treatment Plant	• Lay-up of IM-3 was completed on March 21, 2022; and the system was left in a safe, secure, and preserved state	Unknown; when the IM-3 Plant is decommissioned per the schedule in the IM-3 Decommissioning Work Plan (November 2015)
AOC 30: MW-20 Bench	• The MW-20 Bench is being used for the Final Groundwater Remedy	Unknown; when the Final Groundwater Remedy is decommissioned
AOC 32: Oil Storage Tanks and Waste Oil Sump	• Substantial access constraints • Unit in active operation • Active underground utilities • Other physical dangers	Unknown; when the unit is no longer needed for operations or when the TCS is no longer active

Notes:

Deferred units will be carried through the RCRA and CERCLA process and remain AOCs.

1.3.3 Unit Closures, Soil Removal Actions, and Interim Measures

A series of unit closures, soil removal actions, and IMs have been implemented at the TCS to control, stabilize, or mitigate migration of contaminants by soil and groundwater. Unit closures, soil removal actions and IMs, and groundwater IMs conducted at the Site are described in this section.

The SWMUs, AOCs, and other UAs identified at the TCS have been identified at different times during the history of the RCRA Corrective Action process. Therefore, the status of many of the areas differs significantly, and ranges from those where no investigation has yet been performed, to sites where remediation and closure have already been completed.

The RCRA Corrective Action and CERCLA closure processes are considered complete at the following eight SWMUs and AOCs:

- SWMU 2 – Inactive Injection Well (PGE-08) (soil only)
- SWMU 3 – Inactive Well PGE-06
- SWMU 4 – Inactive Well PGE-07
- SWMU 7 – Precipitation Tank
- SWMU 10 – Old Evaporation Ponds
- Unit 4.6 – Waste Oil Storage Tank
- AOC 2 – Area Around Inactive Injection Well (PGE-08)
- AOC 3 – Area Around Inactive Wells #6 and #7 (PGE-06 and PGE-07)

Previously closed SWMUs and AOCs for which further investigation was requested include the following nine SWMUs and AOCs:

- SWMU 5 (Sludge Drying Beds)
- SWMU 6 (Chromate Reduction Tank)
- SWMU 8 (Process Pump Tank)
- SWMU 9 (Transfer Sump)
- AOC 18 (Former Two-step Wastewater Treatment System Piping)
- Unit 4.3 (Oil/Water Holding Tank)
- Unit 4.4 (Oil/Water Separator [OWS])
- Unit 4.5 (Portable Waste Oil Holding Tank)
- Former 300B Pipeline Liquids Tank

Five of these SWMUs and AOCs were part of the former wastewater treatment system:

- SWMU 5
- SWMU 6
- SWMU 8
- SWMU 9
- AOC 18

PG&E performed closure activities for this system between November 1988 and November 1993. Closure activities included removal of equipment and foundations, removal of impacted soil, and confirmation soil sampling. Closure activities were performed in accordance with an approved closure plan, and a closure certification acceptance letter was issued by DTSC on June 26, 1995. The piping (AOC 18) was not identified as a separate unit but was included as part of the closure of the entire system. In a letter dated July 13, 2006, DTSC requested additional investigation at these five SWMUs and AOCs.

Similarly, DTSC also requested additional investigation of Units 4.3, 4.4, and 4.5, which were part of the former oily water treatment system. PG&E performed closure activities at the oily water treatment system between November 1989 and March 1990 that included removal of equipment, removal of impacted soil, and confirmation soil sampling.

DTSC, with concurrence from DOI, has further requested additional investigation at the Former 300B Pipeline Liquids Tank. Closure activities at this former AST were performed in 1995 and 1996 and included removal of the tank and associated piping, removal of impacted soil, and confirmation soil sampling. San Bernardino County issued a closure certification letter on June 9, 1997.

1.3.3.1 Unit Closures and Soil Removal Actions

Unit closures and soil removal actions have occurred at various investigation units. Exhibits 1-2 and 1-3 provide a short description of these actions. Details are provided in individual investigation unit summaries provided in Section 4.

Exhibit 1-2. Unit Closures
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Investigation Unit	Date	Description
UA-2: Former 300B Pipeline Liquids Tank Area	1996	Removal and closure for Former 300B Pipeline Liquids Tank Soil excavated to approximately 5.5 feet bgs as part of removal process
SWMU 5: Sludge Drying Bed	1988-1989	Demolition, removal, and disposal of an estimated 95 yd^3 of concrete from the walls and floors of the Sludge Drying Beds
SWMU 6: Chromate Reduction Tank	1989-1990	Removal of Chromate Reduction Tank plus 1 foot of soil across footprint of tank
SWMU 8: Process Pump Tank	1988-1990	Removal of Process Pump Tank and approximately 0.25 $yd^3$of soil
SWMU 9: Transfer Sump	1989-1990	Removal of the Transfer Sump and approximately 2 ft^3 of stained soil
AOC18: Combined Wastewater Transference Pipelines	Late 1980s	Closure of the hazardous waste management system and related piping Removal of pipes and surrounding stained soil
AOC 19: Former Cooling Liquid Mixing and Hotwell Area	Early 1990s	Removal of the remnants of the old hotwell
AOC 26: Former Scrubber Oil Sump	1996	Removal of Former Scrubber Oil Sump Soil removed to 10 feet bgs
Unit 4.3: Oily Water Holding Tank	1988-1989	Removal of Oily Waste Holding Tank
Unit 4.4: Oil/Water Separator	1989-1990	Removal of OWS and 19 $yd^3$of stained soil
Unit 4.5: Portable Waste Oil Holding Tank	1989	Removal of Portable Waste Oil Holder Tank

bgs = below ground surface
ft^3 = cubic foot (feet)
yd^3 = cubic yard(s)

Exhibit 1-3. Soil Removal Actions
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Investigation Unit	Date	Description
AOC 9: Southeast Fence Line	2000	Excavation of 1.5 yd^3 of stained soil
AOC 14: Railroad Debris Site	Mid-1990s	Removal of debris and white powder
	1999	Removal of ACM
AOC 5: Cooling Tower A	2000	Removal of approximately 4 feet by 4 feet of stained soil beneath the former chemical shed
AOC 6: Cooling Tower B	2001	Removal of 5 drums' worth of stained soil beneath the former chemical shed
AOC 15: Auxiliary Jacket Cooling Water Pumps	2020	Removal of approximately 280 tons of soil and concrete when the JCW system was updated

AJCW = auxiliary jacket cooling water

JCW = jacket cooling water

1.3.3.2 Soil Interim Measures

This section provides the soil IMs per AOC.

AOC 4 Time-Critical Removal Action

In June 2009, the DOI issued an Action Memorandum for a Time-Critical Removal Action (TCRA) at the AOC 4 - Debris Ravine at the TCS (DOI 2009b); this memorandum directed PG&E to initiate activities necessary to implement and perform TCRA activities at AOC 4. The TCRA was conducted in accordance with CERCLA and, as an interim remedial action, was intended to stabilize and mitigate the threat of release of contaminated material. The history of previous investigations and agency direction leading up to the AOC 4 TCRA is described in the approved *Final Work Plan for Time-Critical Removal Action at AOC 4 Debris Ravine, PG&E Topock Compressor Station, Needles, California* (Alisto et al. 2009) and summarized here.

AOC 4 is located in the southern portion of the TCS and is a narrow, steep-sided arroyo that drains into Bat Cave Wash at the southwestern corner of the TCS. AOC 4 is located on PG&E property, except for a small portion of the westernmost end that extends onto HNWR. The operational history at AOC 4 is not well documented; however, over the years, fill material and debris were deposited in the ravine and trash burning appears to have occurred within AOC 4. Constituents of potential concern (COPCs), which pose a risk to human receptors, and constituents of potential ecological concern (COPECs), which pose a risk to ecological receptors, for AOC 4 were identified in the RFI/RI Report Volume 1 (CH2M 2007a) and the *Revised Final Soil RCRA Facility Investigation/Remedial Investigation Work Plan, PG&E Topock Compressor Station, Needles, California* (Soil RFI/RI Work Plan) (CH2M 2013a) and include:

- Title 22 metals
- CrVI
- PAHs
- Asbestos
- Dioxins and furans
- PCBs

TCRA activities were performed from December 2009 through December 2010 in compliance with the TCRA Work Plan (Alisto et al. 2009). The effort and results were documented in the *Implementation Report for the Time-Critical Removal Action at AOC4, Pacific Gas & Electric Company, Topock Compressor Station, Needles, CA* (PG&E 2011) and summarized in this section.

The TCRA removed approximately 11,799 tons of waste from safely accessible areas of AOC 4. A total of 116 confirmation surface soil samples were collected. The confirmation soil sample analytical results for all analytes were less than applicable target endpoint concentrations, except for dioxin toxicity equivalence (TCDD TEQ). Areawide average concentrations for TCDD TEQ were calculated as the 95th percent upper confidence limit (95UCL) of the mean. The 95UCLs were less than the applicable TECs; therefore, the TCRA objective was met by the removal action.

The excavation, screening, and confirmation approach followed the TCRA Work Plan, including the quality criteria established in the data quality objectives (DQOs) and quality assurance program addendum. Based on the confirmation data set and installation of erosion control measures, the substantial threat of release of contaminated material from AOC 4 has been stabilized and mitigated. A rock gabion structure was installed in the ravine outfall to Bat Cave Wash before TCRA soil removal activities. The gabion acts as a sediment filter; its purpose is to retain debris and soil washed out of the drainage during seasonal rains.

The AOC 4 TCRA interim action was not intended as a substitute for additional investigative or remedial activities required under RCRA or CERCLA and may not be the final remedy for AOC 4. The TCRA is expected to be consistent with and contribute to any subsequent remedial action selected to respond to soils that are the subject of the ongoing RFI/RI.

AOC 9 Soil Removal

In April 2000, a small amount of discolored surface soil was discovered on the southeastern side of the TCS and is thought to have been uncovered by erosion. The discovery was reported to the DTSC, and the area was designated AOC 9. The source of the green staining is believed to be spills from an AJCW system, or runoff from a steam cleaning area, into a broken stormwater discharge pipe leading to a storm drain at AOC 9. Per a corrective action agreement with the DTSC, approximately 1.5 yd^3 of soil were excavated and shipped offsite for disposal. Additional soil removal was not feasible at the time due to the extremely steep slope at AOC 9. A new stormwater drainage pipe was installed, and the area was backfilled with clean soil to prevent erosion of the slope.

1.3.3.3 Groundwater Interim Measures

Beginning in 2004, DTSC directed PG&E to undertake certain measures, known as Interim Measures, to prevent CrVI in the groundwater from reaching the Colorado River. IMs Number (No.) 1, 2, and 3 (IM-1, IM-2, and IM-3), collectively, involved the construction of treatment facilities and installation of four extraction wells to pump contaminated water out of the aquifer for treatment and disposal. More importantly, these IMs were designed to pull contaminated groundwater away from the Colorado River until a permanent remedy could be selected (DTSC 2010a).

Initially, groundwater was extracted from a monitoring well cluster located on a bench above and to the west of the river floodplain (commonly referred to as the MW-20 Bench). This operation was eventually replaced by the existing extraction well system. Groundwater extraction began at wells TW-2S and TW-2D in May 2004, well TW-3D in December 2005, and well PE-1 in January 2006. Before the construction and operation of the current groundwater treatment and injection systems, a batch treatment plant was located on the MW-20 bench, and treated groundwater was transported offsite for disposal at a permitted facility.

Currently, PG&E is implementing IM-3 at the TCS site. IM-3 facilities include:

- A groundwater extraction system consisting of four extraction wells (TW-2D, TW-3D, TW-2S, and PE-1)
- Conveyance piping
- A groundwater treatment plant
- An injection well field for the discharge of the treated groundwater

Of the four extraction wells, one is currently in operation (TW-3D). PE-1 was disconnected from IM-3 on December 6, 2019, to facilitate groundwater remedy construction on the MW-20 Bench. The IM-3 groundwater treatment system is a continuous, multistep process that involves:

- Reduction of CrVI to the less soluble trivalent form (CrIII)

- Precipitation and removal of precipitate solids by clarification and microfiltration
- Lowering the naturally occurring total dissolved solids (TDS) using reverse osmosis

Treated groundwater is returned to the aquifer through an injection system, consisting of two injection wells (IW-2 and IW-3). The IM Performance Monitoring Program (PMP) evaluates the performance of IM-3 to achieve the prescribed performance standard. The results of the PMP are published in quarterly monitoring reports. The performance standard has been achieved for all monitoring periods since the current standard was established in February 2005. IM-3 will be decommissioned after the groundwater remedy has met the criteria set forth in the IM-3 decommissioning work plan (CH2M 2015a).

1.3.4 Corrective Measures Study and Feasibility Study

A groundwater Corrective Measures Study (CMS) and Feasibility Study (FS) for SWMU 1 and AOC 1 and AOC 10 was completed in 2009 (CH2M 2009b). The CMS/FS identified the remedial action objectives (RAOs) for the groundwater remedial action, identified nine remedial alternatives to address the RAOs, and evaluated each of the alternatives against RCRA Corrective Action and CERCLA-defined criteria. As part of the CMS/FS, the DOI identified the Applicable or Relevant and Appropriate Requirements for the action. Based on the evaluation of the alternatives against the criteria, Alternative E, In-situ Treatment with Fresh Water Flushing was recommended as the alternative that provided the best balance of advantages and tradeoffs for the groundwater remedial action. DTSC and DOI approved the CMS/FS in December 2009.

If needed, a soil CMS/FS will be completed after approval of this RFI/RI Report Volume 3. Similar to the groundwater CMS/FS, the objective of the soil CMS/FS will be to develop and evaluate corrective measure alternatives and recommend the most appropriate alternative to manage contaminated soil and sediment where required. The soil CMS/FS will define media cleanup levels that will be protective of human health and the environment, evaluate potential cleanup technologies, and develop and recommend an alternative that is both protective of human health and the environment and consistent with remedial objectives.

1.3.5 Remedial Design and Groundwater Remedy

In a coordinated effort, DOI and DTSC selected the groundwater remedy *(In-situ Treatment with Fresh Water Flushing)* to address chromium in groundwater at SWMU 1, AOC 1, and AOC 10. The DOI decision is presented in the Record of Decision (DOI 2010a); the DTSC decision is presented in a decision package that includes the following documents:

- Certification of the Final Environmental Impact Report (EIR)
- The Final Statement of Basis (DTSC 2011b)
- The Statement of Decision (DTSC 2011c)
- The Resolution of Approval

The *Revised Groundwater Corrective Measure Implementation/Remedial Design Work Plan for SWMU 1/AOC 1 and AOC 10 at PG&E Topock Compressor Station, Needles, California* was subsequently completed in November 2011 (CH2M 2011a), and approved by DOI (2011c).

Phase 1 of the groundwater remedy construction began in October 2018. Phase 1 groundwater remedy startup began on December 22, 2021.

1.4 Soil Engineering Evaluation and Cost Analysis

Concurrent with evaluation of the RFI/RI soil investigation data, the FWS and DOI determined that there are specific areas outside of the TCS where concentrations of constituents in soil significantly exceeded background (BK) values or ecological and residential screening levels on federal land or in locations where constituents have the potential to migrate to federal land. On October 30, 2018, DOI directed PG&E to conduct an Engineering Evaluation (EE) Cost Analysis (CA) for a potential Non-Time-Critical Removal Action (NTCRA) to address contaminated soil on land adjacent to the TCS.

A draft EE/CA report was made available for public, agency, and stakeholder review and comment, and Tribal consultation on May 29, 2020. The public review period ended on August 5, 2020. Tribal consultation on the draft EE/CA was requested by the Tribes in 2018; official consultation with the Tribes began August 11, 2020, and continued through April 8, 2021. DOI reviewed and considered stakeholder and Tribal comments on the draft EE/CA and directed PG&E to prepare a final EE/CA document. The EE/CA evaluated and selected technologies and remedial alternatives to address contaminated soil. The EE/CA cited the following National Contingency Plan (NCP) factors as the reasons an NTCRA is being considered:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants
- Actual or potential contamination of drinking water supplies or sensitive ecosystems
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released

Based on these NCP factors, conclusions of the HHERA, and comparison of soil concentrations to numerical removal action goals (RAGs), RAOs were developed, and preliminary potential action areas were identified.

Several removal action alternatives were identified, and based on the comparative analysis of the removal action alternatives against the criteria of effectiveness, implementability, and cost, a recommended alternative was proposed.

DOI issued an NTCRA Action Memorandum on October 12, 2021. DOI directed PG&E to prepare a detailed work plan for implementation of DOI's selected NTCRA alternative. The NTCRA Work Plan public and stakeholder comment period and Tribal Consultation Period was November 1 through December 20, 2021. The NTCRA Work Plan (Jacobs 2022) was approved by DOI on June 27, 2022 (DOI 2022).

Conclusions from the final EE/CA and associated NTCRA will be incorporated into the overall remedial planning and decisions for soil at the TCS site.

1.5 Soil Non-Time-Critical Removal Action

Section V of DOI's Action Memorandum (DOI 2021b) states the intent and objectives of the Soil NTCRA as follows:

> *"This non-time-critical removal action is intended to stabilize and mitigate the threat of release of contaminated material surrounding and within the Refuge and reduce the overall threat to human health and the environment. This action may not be the final remedy for the AOCs/SWMUs. The soil remedial investigation process will continue for the Site."*

To comply with the stated intent and objectives of the Action Memorandum, the Soil NTCRA will remove soil and other solid phase matrices, including white powder, black sandy material, and debris on federal land or in locations where constituents have the potential to migrate to federal land. The removal action will be limited to the following areas detailed in the EE/CA and identified in the Action Memorandum:

- SWMU 1
- AOC 1
- AOC 9
- AOC 10
- AOC 11
- AOC 14
- AOC 16
- AOC 27

Implementation of the NTCRA began July 2022 and is ongoing as this document is being prepared. As of June 2023, removal actions have been completed in AOC 11 and most of AOC 10[2].

Upon completion of the NTCRA, a Completion Report will be prepared and will include a description of the volume and disposition of materials removed, figures depicting the extent of the excavation and soil sample locations, and tables listing soil sample confirmation screening results.

Final confirmation sample results will be used to recalculate the post-removal action risk at the Site. The Sitewide data set used in the Soil HHERA will be revised to reflect Site conditions after the NTCRA. Revised HHERA findings will be incorporated into the overall remedial planning and decisions for soil at the TCS site.

1.6 Objectives of RFI/RI Report

The objective of the three-volume RFI/RI Report document is to present required elements for completion of the RFI and CERCLA RI. The objectives of the RFI, as specified in Attachment 4 of the Corrective Action Consent Agreement (DTSC 1996), are to determine the nature and extent of releases of contamination from regulated units, SWMUs, and other source areas at the TCS, and to gather the data necessary to support the CMS.

The purpose of the RI, as specified in the NCP, Title 40 *Code of Federal Regulations* (CFR) Part 300, is to collect data necessary to adequately characterize the Site for developing and evaluating effective remedial alternatives. 40 CFR 300.430(d) requires that the RI adequately characterize the nature of, and threat posed by, the hazardous substances and materials, and assess the extent to which the release poses a threat to human health and the environment.

1.7 Report Organization

This document is Volume 3 of the RFI/RI Report for the TCS and presents the results of the soil investigation and related activities. The report is organized as follows:

- **Section 1, Introduction**, contains regulatory framework, scope, purpose, and background information, as well as objectives and report organization.
- **Section 2, Soil Investigation Program**, provides an overview and history of the soil investigation program.
- **Section 3, Data Summary and Data Quality Objective Evaluation**, summarizes the overall data evaluation process for Part A, Part B, and the Perimeter Area investigation, and describes the storm drain system investigation program.
- **Section 4, Remedial Investigation Summaries for Investigation Areas,** presents an evaluation of the Combined Soil RFI/RI Data Set and soil parameter data against the Part A and Part B DQOs, and investigation summaries for the SWMUs, AOCs, and UAs in the Part A and Part B investigation areas, and identifies and summarizes data gaps.
- **Section 5, PG&E's Risk Assessment,** summarizes the human health risk assessment (HHRA) and HHERA conducted by PG&E.
- **Section 6, Conclusions and Recommendations**, recommends investigation units for consideration in the CMS/FS, if needed, based on the DQO evaluation and the risk management decisions by DTSC and DOI. It includes potential areas for remedial action, media, constituents of concern (COCs), and RAOs. It also provides an updated list of potential remedial technologies listed in the soil CMS/FS Work Plan (CH2M 2008a), potential treatability studies needed for CMS/FS, and investigation units that will not be carried forward to the CMS/FS.
- **Section 7, References**, presents a list of works cited when preparing this document.

[2] At some locations, contamination has been identified and removed beyond the AOC boundary.

- **Appendix A, Historical Aerial Photographs,** presents aerial photographs of the TCS and the surrounding area.
- **Appendix B, Field Investigation Summary**, consists of the following items:
  - A table of deviations from the Soil RFI/RI Work Plan (CH2M 2013a)
  - Boring and trench logs
  - A description of the AOC 1 North (mouth of Bat Cave Wash) vegetation removal activities
  - The AOC 10 (mouth of East Ravine) investigation summary
  - The results of the stormwater and industrial drain survey
  - The geophysical survey results
  - The asbestos survey data
  - A summary of soil that has been retained onsite waiting for development of cleanup levels and soil that was disposed of offsite as investigation-derived waste (IDW)
- **Appendix C, Threat to Groundwater Modeling Results**, presents results of modeling assessing the potential threat to groundwater from constituents detected in soil.
- **Appendix D, Laboratory Reports,** presents laboratory reports and chain-of-custody forms for all data presented herein.
- **Appendix E, Data Quality Evaluation**, describes the data quality of analytical results collected during implementation of the Soil Data Gaps Work Plan (CH2M 2013a).
- **Appendix F, Groundwater Remedy Baseline Soil Sampling and Opportunistic Soil Sampling Results**, presents soil data collected to document baseline soil conditions before groundwater remedy implementation.
- **Appendix G, Historical Documents,** presents a work order for the installation of water treatment and disposal facilities at the TCS.
- **Appendix H, Topock Soil NCTRA Results,** presents the data collected during NTCRA removal activities at AOC 10 and AOC 11 through April 2023.
- **Appendix I, Summary of Removal of Contaminated Material at Transwestern Bench, Technical Memorandum,** describes the removal of stained material discovered at the Transwestern Bench on October 25, 2022.
- **Appendix J, Responses to Comments on the December 2019 Initial Draft Volume 3 RFI/RI Report,** presents the table summarizing the RTC from DOI, DTSC, and Stakeholders on the initial draft Volume 3 Soil RFI/RI Report.
- **Appendix K, Responses to Comments on the May 2021 Revised Draft Volume 3 RFI/RI Report,** presents the table summarizing the RTCs from DOI, DTSC, and Stakeholders on the initial draft Volume 3 Soil RFI/RI Report.
- **Appendix L, Responses to Comments on the September 2022 Revised Draft Volume 3 RFI/RI Report,** presents the table summarizing the RTCs from DOI, DTSC, and Stakeholders on the initial draft Volume 3 Soil RFI/RI Report.

2. Soil Investigation Program

This section presents a history and description of the soil investigation program.

2.1 History of the Soil Investigation Program

The RFI/RI Report Volume 1 identified 19 SWMUs, AOCs, and other UAs at the TCS to be carried forward in the Soil RFI/RI:

- SWMU 1 – Former Percolation Bed
- AOC 1 – Area Around Former Percolation Bed
- AOC 4 – Debris Ravine
- AOC 5 – Cooling Tower A
- AOC 6 – Cooling Tower B
- AOC 7 – Hazardous Materials Storage Area
- AOC 8 – Paint Shed
- AOC 9 – Southeast Fence Line
- AOC 10 – East Ravine
- AOC 11 – Topographic Low Areas
- AOC 12 – Fill Area
- AOC 13 – Unpaved Areas within the Compressor Station
- AOC 14 – Railroad Debris Area
- AOC 15 – Auxiliary Jacket Cooling Water Pumps
- AOC 16 – Former Sandblast Shelter
- AOC 17 – Onsite Septic System
- AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
- AOC 20 – Industrial Floor Drains
- UA-1 – Pipeline Disposal Area

Additional investigation was requested by DTSC for nine areas that were previously closed:

- SWMU 5 – Sludge Drying Beds
- SWMU 6 – Chromate Reduction Tank
- SWMU 8 – Process Pump Tank
- SWMU 9 – Transfer Pump
- AOC 18 – Combine Wastewater Transference Pipelines
- Units 4.3, 4.4, and 4.5 – Oily Water Holding Tank, Oil/Water Separator, Portable Waste Oil Holding Tank
- UA-2 – Former 300B Pipeline Liquids Tank

Fourteen units were added after the RFI/RI Report Volume 1. The *Revised Final Addendum to the RFI/RI, Volume 1* (CH2M 2014a) provides a description and Site history of the following new units:

- SWMU 11 – Former Sulfuric Acid Tanks
- AOC 21 – Round Depression near Sludge Drying Bed
- AOC 22 – Unidentified Three-Sided Structure
- AOC 23 – Former Water Conditioning Building
- AOC 24 – Stained Area and Former American Petroleum Institute (API) Oil/Water Separator
- AOC 25 –Compressor and Generator Engine Basements
- AOC 26 – Former Scrubber Oil Sump
- AOC 27 – MW-24 Bench
- AOC 28 – Pipeline Drip Legs
- AOC 29 – Interim Measure No. 3 Treatment Plant
- AOC 30 – MW-20 Bench
- AOC 31 – Former Teapot Dome Oil Pit
- AOC 32 – Oil Storage Tanks and Waste Oil Sump
- AOC 33 – Potential Former Burn Area near AOC 17

AOCs, SWMUs, and UAs were identified as potentially impacted areas through the following activities:

- Records reviews (for example, historical aerial photographs, chemical use processes)
- Data evaluation
- Interviews
- Visual site inspection

Figures 2-1 and 2-2 show the investigation units. The boundaries of the investigation units shown on the figures were estimated based on the information available when the units were first assigned. The extent of contamination found during the RFI/RI investigation process may extend beyond the depicted boundaries, or contamination may only be found in a small portion of the depicted area, or not found at all.

All investigation areas were categorized into two groups: those outside the TCS fence line (Part A investigation units) and those inside the TCS fence line (Part B investigation units). The purpose of this categorization was to group units by their accessibility to potential receptors; which, in turn, identifies the appropriate cleanup goals and screening levels for agency consideration. For units outside the TCS fence line (Part A investigation units), residential and ecological screening levels apply. For units inside the fence line (Part B investigation units), where access is limited, and ecological receptors are not assumed to be present, only commercial screening levels (CSLs) apply. BK values are relevant to all units for assessing nature and extent of contamination.

Two draft work plans were initially prepared to describe collection of additional soil data to complete site characterization activities at the SWMUs, AOCs, and UAs identified in the RFI/RI Report Volume 1. Investigation units outside the TCS fence line were addressed in the Draft RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan Part A, PG&E Topock Compressor Station, Needles, California (Draft Soil Part A Work Plan) (CH2M 2006). Investigation units within the TCS fence line were addressed in the Draft RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan Part B, PG&E Topock Compressor Station, Needles, California (Draft Soil Part B Work Plan) (CH2M 2007b).

Based on a DTSC letter dated January 4, 2011 (DTSC 2011d), the Parts A and B investigations were combined into a single work plan that also incorporated the 14 units identified after the Soil RFI/RI Work Plan (CH2M 2013a). Approval of the Soil RFI/RI Work Plan was granted by DTSC and DOI following consultation with nine Native American Tribes (comments were received from the FMIT and Hualapai Tribe) (DTSC 2015b; DOI 2015a). Comments on the work plan from agencies and Tribes have been documented (Hualapai Department of Cultural Resources 2011; Hargis and Associates 2011; DOI 2011b; DTSC 2011a). Tribal comments include the concept of minimizing the number of samples and disturbances to sensitive resources; it was requested that minimal sampling be performed – only that which is necessary to characterize the Site for the RI.

Historical information pertinent to the additional units (SWMU 11 and AOCs 22 through 33) was summarized in the *Addendum to RCRA Facility Investigation/Remedial Investigation Report, Volume 1* (CH2M 2014a). Summaries of the Soil RFI/RI Work Plan investigations and subsequent data gap investigations are provided in the following subsections.

2.2 Soil Investigation Environmental Impact Report

As part of the evaluation of the Soil RFI/RI Work Plan, the *PG&E Topock Compressor Station Soil Investigation Project Final Environmental Impact Report* (Soil Investigation EIR) (DTSC 2015a) for the PG&E TCS soil investigation project was prepared by DTSC, in accordance with the California Environmental Quality Act (CEQA). An EIR is a document that evaluates the environmental effects of a proposed project (in this instance, the investigation of soil and sediment at the Site), and feasible mitigation measures that may reduce or avoid the significant impacts. It also discusses alternatives to the proposed project that could accomplish most of the primary project objectives while substantially reducing or avoiding significant environmental impacts.

A Notice of Preparation of a draft EIR was released to the public on November 28, 2012. The draft Soil Investigation EIR (DTSC 2015a) was released for public notice on July 7, 2014, for a 60-day public comment period. Public meetings were held in Needles, California and Golden Shores, Arizona during the comment period. Comments received about the draft Soil Investigation EIR and new information about the biological receptors at the Site prompted an update of the biology section. A partially recirculated draft Soil Investigation EIR was released for public notice on April 15, 2015, for a 45-day public comment period. More than 750 individual comments were received by DTSC from the two public comment periods. DTSC certified the final Soil Investigation EIR on August 24, 2015.

The Soil RFI/RI Work Plan was approved under the conditions that PG&E shall follow the Mitigation Monitoring Reporting Program and all the conditions of approval identified in the Statement of Decision and Resolution of Approval (DTSC 2015b). The Soil RFI/RI Work Plan proposed investigation activities at a total of 292 locations. The Soil Investigation EIR allowed for contingency of up to 25% additional locations (that is, up to 73 locations), for a total of 365 locations. Investigation activities proposed in the Soil RFI/RI Work Plan (CH2M 2013a) accessed 365 locations.

2.3 Soil Part A Investigation (Outside the Station Fence Line)

Part A of the soil investigation focused on investigation areas outside of the TCS fence line, as shown on Figure 2-1. The first phase of Part A soil sampling was initiated in August 2008 and performed in accordance with the Draft Soil Part A Work Plan (CH2M 2006). The results of the 2008 Phase 1 site investigation were presented in the Soil RFI/RI Work Plan (CH2M 2013a), and a data gaps analysis was conducted to evaluate the need for subsequent investigation. The sampling needs identified as a result of the data gaps analysis (Phase 2 sampling) were outlined in the Soil RFI/RI Work Plan.

To consistently and systematically evaluate the Phase 1 data, a series of meetings was held between June 2008 and February 2010 to draft project-specific DQOs for the Soil Part A investigation. The DQO process is a recognized procedure for defining project objectives and decisions, and optimizing sampling and other information-gathering programs to balance uncertainty, site disturbances, and cost in an acceptable manner. The process includes the following steps (EPA 2000, 2006a-b):

- Step 1 – State the Problem
- Step 2 – Identify the Decision
- Step 3 – Identify the Inputs to the Decision
- Step 4 – Define the Study Boundaries
- Step 5 – Develop a Decision Rule
- Step 6 – Specify Tolerable Limits on Decision Errors
- Step 7 – Optimize the Design

Part A DQO Steps 1 through 5 are presented in the technical memorandum *Data Quality Objectives – Part A Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (CH2M 2010). As detailed in that document, the following decision statements were identified:

- **Decision 1 (Nature and Extent).** Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical TCS practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

- **Decision 2 (Data Sufficiency Evaluation).** Determine representative exposure point concentrations (EPCs) for residual soil and/or sediment contamination resulting from historical TCS practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

- **Decision 3 (Potential Threat to Groundwater).** Determine whether residual soil concentrations resulting from historical TCS practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

- **Decision 4 (Data Sufficiency Evaluation).** Determine the site-specific soil property and contaminant distribution information necessary to support the CMS/FS decisions and remedial design. If full determination of site-specific soil property and contaminant distribution information based on sample data is not feasible, address uncertainties in the CMS/FS and remedial design.

Part A DQO Steps 6 and 7 were subsequently completed through two meetings with DTSC, DOI, Tribes, other Stakeholders, and PG&E held at the TCS on October 6 and 7, and November 2 and 3, 2010. In these meetings, data were reviewed with stakeholders, the AOCs were visited, and preliminary data gaps evaluations were discussed.

A meeting was held on December 7, 2010, between DOI, DTSC, and Tribes to discuss UA-1 and UA-1 Alternate, combining the soil investigation into one document, and sampling at the mouth of Bat Cave Wash. On December 13, 2010, DTSC issued direction to PG&E on UA-1 and UA-1 Alternate (DTSC 2010b). On December 15, 2010, DOI issued direction to PG&E on sampling at the mouth of Bat Cave Wash (DOI 2010b). On January 13, 2011, a meeting was held to discuss Tribes' comments on the preliminary data gaps evaluation. Additional direction to PG&E on the Part A data gaps evaluation was issued in a joint letter from DTSC and DOI, dated February 25, 2011. Based on the Part A data gaps evaluation, it was determined that no further investigations were needed at the following two areas:

- AOC 12 – Fill Areas
- UA-2 – Former 300B Pipeline Liquids Tank

The data gaps evaluation in the Soil RFI/RI Work Plan was extended to cover all new units, including the units added after the completion of the RFI/RI Report Volume 1. In 2013, following the Part A data gaps evaluation, 11 investigation areas located outside of the TCS fence line were proposed for further investigation (CH2M 2013a). The Part A investigation areas were:

- SWMU 1 – Former Percolation Bed
- AOC 1 – Area Around Former Percolation Bed
- AOC 4 – Debris Ravine
- AOC 9 – Southeast Fence Line
- AOC 10 – East Ravine
- AOC 11 – Topographic Low Areas (including the two new areas)
- AOC 14 – Railroad Debris Area
- AOC 27 – MW-24 Bench
- AOC 28 – Pipeline Drip Legs
- AOC 31 – Former Teapot Dome Oil Pit (investigated in conjunction with the Perimeter Area sampling program; Section 2.5.1)
- UA-1 – Potential Pipe Disposal Area

Sampling at AOC 29 – IM-3 Treatment Plant and AOC 30 – MW-20 Bench was not proposed. Investigation of these AOCs was scheduled to be conducted as part of the decommissioning and removal activities for these areas, as proposed in *IM-3 Decommissioning, Removal, and Restoration Work Plan* (CH2M 2014b), and as part of the baseline sampling during the TCS groundwater remedy system installation, as proposed in the *Groundwater Remedy Implementation – Baseline Sampling and Analysis Plan* (CH2M 2015b). A portion of AOC 30 - MW-20 Bench is being used to support the groundwater remedy, so this AOC will not be fully investigated until groundwater remedy decommissioning sampling is conducted. Sampling activities described in the Soil RFI/RI Work Plan were initiated in November 2015. X-ray fluorescence (XRF) screening and evaluation of XRF data was conducted to help refine sampling locations. Appendix B provides details.

Further investigation and management of UA-1, Potential Pipe Disposal Area was described in letters from DTSC to DOI (DTSC 2016a), and from FMIT to DOI (FMIT 2016). Based on the results of a geophysical survey conducted in 2015 and historical accounts from a former PG&E employee, DTSC recommended trenching and potholing at UA-1A. However, DTSC also noted that they would respect the decision of the landowner and DOI (DTSC 2016b).

On December 6, 2016, DOI met with representatives of the following Tribes:

- Chemehuevi Indian Tribe
- Cocopah Indian Tribe
- Colorado River Indian Tribe
- FMIT
- Hualapai Tribe

DOI discussed its commitment to limit intrusive activities near the Topock Maze and its position that the results of the UA-1 geophysical survey do not warrant intrusive investigations (DOI 2017a). Because of the proximity of UA-1 to the Topock Maze and other archaeological features, on September 9, 2016, DOI notified PG&E that additional investigation requiring ground disturbance was not appropriate at the time (DOI 2016a).

Conceptual site models (CSMs) were developed for each Part A investigation unit at the time of the Soil RFI/RI Work Plan. During implementation of the Soil RFI/RI Work Plan, minor updates to the CSMs for AOC 1, AOC 10, and AOC 11 were identified.

2.4 Soil Part B Investigation (Inside the Station Fence Line)

Part B of the soil investigation focused on investigation units inside the TCS fence line, as shown on Figure 2-2. The Soil Part B DQO Steps 1 through 5 are documented in the technical memorandum *Data Quality Objectives – Part B Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (Soil Part B DQO Tech Memo) (CH2M 2011b). Steps 6 and 7 were completed as part of the data gaps evaluation carried out during the implementation of the soil investigation. The following decision statements were developed:

- **Decision 1**. Determine the nature and extent of residual soil concentrations resulting from historical TCS practices. If determination of the nature and extent of soil concentrations based on sample data is not feasible or warranted, address uncertainties in the risk assessment and/or CMS/FS or IMs.
- **Decision 2**. Determine representative EPCs for residual soil contamination resulting from historical TCS practices. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment.
- **Decision 3**. Determine whether residual soil concentrations resulting from historical TCS practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.
- **Decision 4**. Determine whether residual soil concentrations inside the fence line resulting from past TCS practices pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway. If a potentially unacceptable risk to receptors outside fence line exists, or if determination of potential risk to receptors outside fence line based on sample data is not feasible, develop controls to eliminate migration pathways or remove contaminated soil.
- **Decision 5**. Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

The Soil RFI/RI Work Plan identified the following 27 investigation units inside the TCS fence line, as shown on Figure 2-2:

- SWMU 5 – Sludge Drying Beds
- SWMU 6 – Chromate Reduction Tank
- SWMU 8 – Process Pump Tank
- SWMU 9 – Transfer Sump
- SWMU 11 – Former Sulfuric Acid Tanks
- AOC 5 – Cooling Tower A
- AOC 6 – Cooling Tower B
- AOC 7 – Hazardous Materials Storage Area
- AOC 8 – Paint Locker
- AOC 13 – Unpaved Areas within the Compressor Station
- AOC 15 – Auxiliary Jacket Cooling Water Pumps
- AOC 16 – Sandblast Shelter
- AOC 17 – Onsite Septic System
- AOC 18 – Combined Hazardous Waste Transference Pipelines
- AOC 19 – Former Cooling Liquid Mixing and Former Hotwell Area
- AOC 20 – Industrial Floor Drains
- AOC 21 – Round Depression near Sludge Drying Bed
- AOC 22 – Unidentified Three-sided Structure
- AOC 23 – Former Water Conditioning Building
- AOC 24 – Stained Area and Former API Oil/Water Separator
- AOC 25 –Compressor and Generator Engine Basements
- AOC 26 – Former Scrubber Oil Sump
- AOC 32 – Oil Storage Tanks and Waste Oil Sump (this is an active unit)
- AOC 33 – Potential Former Burn Area near AOC 17 (investigated as part of AOC 17)
- Unit 4.3 – Oily Water Holding Tank
- Unit 4.4 – Oil/Water Separator
- Unit 4.5 – Portable Waste Oil Storage Tank

For Volume 3, Units 4.3, 4.4, and 4.5 are assessed as one unit, and the portion of AOC 4 that now falls within the TCS fence line is included in the Part B investigation unit count, for a total of 26 investigation units.

Sampling activities described in the Soil RFI/RI Work Plan for the investigation units inside the fence line were initiated in November 2015. XRF screening and evaluation of XRF data was conducted to help refine sampling locations. Appendix B provides details.

CSMs were developed for each Part B investigation area as part of the Soil RFI/RI Work Plan. During implementation of the Soil RFI/RI Work Plan, minor updates to the CSM for AOC 13 were made.

2.5 Other Investigation Areas

In addition to the units described, other investigation areas in this report include the following units:

- Perimeter Area
- Storm drain system
- TCS Well #4 (TCS-4) located in AOC 1.

2.5.1 Perimeter Area Investigation

The Perimeter Area is the area immediately outside the TCS to the toe of the slope.

Perimeter sampling locations were identified in areas with visible discoloration or other potential direct impacts, or that may experience or have experienced surface water runoff through sheet flow. Most of the

TCS is currently bermed or curbed. Some of the areas that are currently bermed with soil are known to be, or were likely to have been, unbermed in the past. Perimeter sampling locations were originally selected during a field walk with DTSC and DOI on October 18, 2007. The proposed locations were modified following the Site walk with DTSC, DOI, and the Tribes on December 15, 2011.

While berms and curbs are present along most of the TCS fence line, historical sheet flow pathways could have been different than current pathways along the perimeter. DTSC and DOI, therefore, directed PG&E to collect perimeter samples along the entire perimeter, regardless of the location of current or historical berms or curbs (CH2M 2013a). The proposed Perimeter Area investigation program was included as Appendix C of the Soil RFI/RI Work Plan.

Perimeter sampling was conducted in a phased manner, as directed by DTSC and DOI, and consistent with the phased sampling approach for the investigation within the fence line. To focus sampling at areas with the most potential for contamination and to minimize the total number of soil samples, XRF screening was performed every 50 feet in all areas along the perimeter, except the areas addressed by sampling for certain AOCs, where topography would have precluded migration (along a portion of the southern fence line), and in areas near the Main Office building because TCS industrial operations have never historically occurred and are not currently occurring in these areas. The Main Office operations have been limited to administrative activities only.

XRF screening and evaluation of XRF data were conducted in November 2015, as described in Appendix B. Conventional soil samples were collected for laboratory analysis at XRF locations where the XRF results exceeded Part A screening levels. If screening levels were not exceeded, a sample was still collected at least every 100 feet along the perimeter, except as described in this section. The locations for soil samples required as a result of XRF screening was determined in conjunction with the agencies. The need for step-out samples further downslope was based on initial perimeter sample results.

Perimeter Area investigation data were used to evaluate whether human and ecological receptors outside the TCS fence line could be exposed to surface soil impacted by chemicals originating within the TCS fence line through the offsite migration pathway. The specific pathways that could expose receptors outside the fence to constituents that migrated outside the TCS fence line are defined in the *Risk Assessment Work Plan, PG&E Topock Compressor Station Needles, California* (Arcadis 2008a) and the Soil Part A DQO Tech Memo (CH2M 2010). The decision process for the offsite migration[3] evaluation is described in the Soil Part B DQO Tech Memo (CH2M 2011b).

The location of the former Teapot Dome oil pit (AOC 31) overlaps with the Perimeter Area investigation. To simplify review of the work plan and planning of the investigation effort, investigation of AOC 31 was conducted as part of the Perimeter Area investigation. However, evaluation of the sampling results and potential risks were conducted separately for each area.

2.5.2 Storm Drain System Investigation

The storm drain system consists of active and inactive storm drain inlets and pipes that originate within the TCS and flow to discharge points outside the fence line.

DTSC directed PG&E to conduct a comprehensive evaluation of the facility storm drain system in its October 5, 2010, comments on the Draft Soil Part B DQO Tech Memo (DTSC 2010c). The historical investigation associated with the storm drain system was limited to AOC 9, AOC 10a, and low-lying areas that received stormwater runoff outside the fence line. A records review for storm drain locations was conducted for the RFI/RI Report Volume 1 (CH2M 2007a) and during subsequent phases of soil investigation work plan preparation. The proposed storm drain system investigation program was described in Appendix D of the Soil RFI/RI Work Plan.

[3] Throughout this document, offsite migration refers to movement of contaminants from inside the TCS fence line to outside the TCS fence line.

A goal of the storm drain investigation was to assess and identify alignments of various storm drain lines, and collect soil data along storm drain alignments outside the fence line. Information on storm drain line alignments is required to satisfy Decision 4 of the Part B DQOs (CH2M 2011b).

In addition, to satisfy Part A and Part B DQO Decision 1, data were needed to characterize potential discharges from storm drains to soil. These data were also required to address assessment of the Part A HHERA (Decision 2). Finally, both types of information were required to satisfy Part A Decision 4 and Part B DQO Decisions 4 and 5 (that is, so there is sufficient information to evaluate the potential for offsite migration via the storm drains and proceed with the development of the CMS/FS, remedial design, and IMs).

The primary transport pathway associated with the storm drain system would be discharge of contaminants into the storm drains, followed by runoff from the storm drains to areas outside the fence line. It is also possible that discharge could have occurred at joints or breaks in the storm drain lines. Drainage pathways are important considerations in the storm drain alignment investigation to allow evaluation of which storm drains discharge to specific outfalls.

The storm drain system investigation consisted of an expanded records search and visual field verification of the information from the records search, to the degree feasible, and the information obtained was then incorporated into the storm drain investigation program in Appendix D of the Soil RFI/RI Work Plan. Additional steps consisted of flow testing video camera tracing, as feasible, and soil sampling, which were conducted in November 2015 and February 2016. The methods are described in Appendix A of the RFI/RI Work Plan. The results, conclusions, and recommendations are presented in Section 4.3.

2.5.3 TCS Well #4 (Located Within AOC 1)

The RFI/RI Report Volume 1 presents information (in Section 4.1.1.2) regarding a TCS employee who reported that he was personally responsible for welding a cap onto an approximately 12-inch-diameter vertical pipe located in Bat Cave Wash. During file reviews of historical TCS documents, a work order was found with handwritten notes showing 650 feet of steel pipe extending from a “water treatment chamber” at the former sludge drying bed area to an “abandoned water well” in the bottom of the wash. The date of the work order is March 12, 1964, and the date completed is shown as November 1, 1964. The discovery of the work order and the previous report from the plant employee of an abandoned well in Bat Cave Wash prompted additional historical file reviews. The description of the sludge dying beds (SWMU-5) in RFI/RI Report Volume 1 also states that a single-step wastewater treatment pond was constructed in one of the former sludge drying beds in 1964, which is consistent with the date and the scope of work described on this work order. The work order is included as Appendix G.

In addition to the work order, two large format blueprints, dated 1956 and 1957, showing topography around the TCS site were located. These blueprints show a well, referred to as “Well #4,” in the bottom of Bat Cave Wash. Based on this information, a surface geophysical survey was performed on April 2, 3, and 4, 2013, in the suspected area of the old well. The survey identified a linear arrangement of weak anomalies (identified as a “possible pipeline or buried cable alignment”), extending down Bat Cave Wash and terminating at a feature identified as “suspected shallowly buried metal debris.” The location of the northern end of this linear feature is approximately 650 feet from the sludge drying bed, along the estimated route that the pipe was shown to take on the work order. It was inferred that this location corresponds to the location of “Well #4” (now referred to as TCS-4).

As part of TCS maintenance activities, a pothole was installed July 30, 2013, to positively locate the well. The capped well was found at approximately 4 feet bgs. A steel pipe leading into the well was also confirmed at approximately 7 feet bgs. This horizontal pipe, which is understood to have been used for the injection of wastewater into TCS-4 (CH2M 2015c), was approximately 3 inches in diameter, was wrapped or covered with a tar-like material, and entered the side of the well from a welded intersection. Once the well location was confirmed, the pothole was backfilled using the same material removed.

The well was uncovered again on September 11, 2013, to assess the downhole condition of the well and gather information needed to prepare a well decommissioning plan. Two soil samples were opportunistically collected from the excavation around the well, and a polyvinyl chloride (PVC) extension was added to the well casing, so it extended to the surface. The excavation area was backfilled to grade with originally excavated material, and a downhole video log was performed. This initial video log encountered an obstruction in the well at approximately 59 feet bgs.

During the week of March 24, 2014, a rotosonic drill rig was used to clear the obstruction, which was determined to be unconsolidated fill material. The well casing was cleared of the fill material to a depth of approximately 158 feet bgs, where a hard bottom was encountered. On April 1, 2014, a second downhole video log was performed. During the second video log, it was determined that the well had filled back in with unconsolidated material to a depth of approximately 127 feet bgs.

The well was decommissioned between February 24, 2016, and March 9, 2016, in accordance with the *Decommissioning Plan for Topock Compressor Station Well Number 4 (TCS-4)* (CH2M 2015c). Section 4.1.1 provides the soil sample results.

2.6 Additional Data Gap Investigations

As described in the Soil RFI/RI Work Plan (CH2M 2013a), data collected during the field implementation of the Soil RFI/RI Work Plan were reviewed to assess potential data gaps in meeting the project DQOs. As data gaps were identified, PG&E conducted additional field investigation to address the data gaps. These additional soil sampling activities were presented in a series of three data gap work plans (CH2M 2016a, 2016b, 2016c). BLM provided the work plans to the Tribes for consultation in accordance with the Programmatic Agreement. The work plans were also provided to the Stakeholders for review and comment before implementation. Consistent with previous comments, Tribal comments include the concept of minimizing the number of samples and disturbances to sensitive resources and requested that minimal sampling be performed (only what is necessary to characterize the Site for the RI).

This section summarizes the sampling activities proposed in these data gap work plans. Appendix B provides details about the field investigation activities.

2.6.1 Data Gap Work Plan 1

The first data gap work plan, *Topock Soil RFI/RI—Plan to Address Data Gaps Identified during Work Plan Implementation* (DGWP-01) (CH2M 2016a), provided information for an additional 22 soil sampling locations and activities to be conducted at the following 5 investigation areas to address data gaps:

- AOC 10 – East Ravine (5 additional locations)
- AOC 14 – Railroad Debris Site (2 additional locations)
- AOC 19 – Former Cooling Liquid Mixing and Hotwell Area (1 additional location)
- AOC 27 – MW-24 Bench (7 additional locations)
- Storm Drain Assessment (7 additional locations)

AOC 19 is located inside the TCS fence line. The others are located outside of the fenced area.

The data gaps addressed in DGWP-01 were identified following review of data collected during initial field surveys, including XRF analysis of surface soil samples, geophysical and underground utility surveys, and recent field observations. Additional soil sampling locations were identified in known investigation units. DGWP-01 also presented clarification on the approach to field work at originally planned sample locations at AOC 14, AOC 27, and as part of the storm drain assessment. Data were collected to resolve data gaps related to the following decision statements:

- Part A and Part B DQO Decision Statements #1 – Determine the nature and extent of residual soil concentrations
- Part A and Part B DQO Decision Statements #2 – Determine representative EPCs for residual soil and sediment contamination

- Part A DQO Decision Statement #4 – Determine site-specific soil property and contaminant distribution

Supplemental storm drain data were collected to assess soil that may have been affected by newly discovered or confirmed outfalls or breaks in storm drains.

Conditional approval of the DGWP-01 was provided by the agencies on February 2, 2016, including consideration of comments received from the following Tribes (DOI and DTSC 2016a):

- Cocopah Indian Tribe
- FMIT
- Hualapai Tribe

2.6.2 Data Gap Work Plan 2

The second data gap work plan, *Topock Soil RFI/RI—Plan to Address Data Gaps Identified during Work Plan Implementation* (DGWP-02) (CH2M 2016b), provided information for an additional five soil sampling locations and activities to be conducted at the two investigation areas. The investigation areas are outside the fence line, and are:

- AOC 1 – Bat Cave Wash (4 additional locations)
- AOC 10 – East Ravine (1 additional location)

The data gaps addressed in DGWP-02 were identified following review at the time of DGWP-02 preparation and data collected in Bat Cave Wash after finalizing the Soil RFI/RI Work Plan. Data were collected to resolve data gaps related to Part A DQO Decision Statement #1 – Determine nature and extent of residual soil and sediment concentrations resulting from historical TCS practices.

Conditional approval was provided by the agencies with responses to questions from the FMIT and Cocopah Indian Tribe, as well as additional directions to PG&E, including a request for more specific descriptions of proposed sampling locations (DOI and DTSC 2016b).

2.6.3 Data Gap Work Plan 3 and Data Gap Prioritization

Once sample collection associated with the Soil RFI/RI Work Plan and DGWP-1 and -2 was completed, the entirety of the validated laboratory analytical results were evaluated in accordance with the DQOs defined in the Soil RFI/RI Work Plan for each investigation unit, to determine whether data gaps remained. Approximately 297 remaining data gaps were identified that required collection of additional data at both existing and new locations, both inside and outside the TCS.

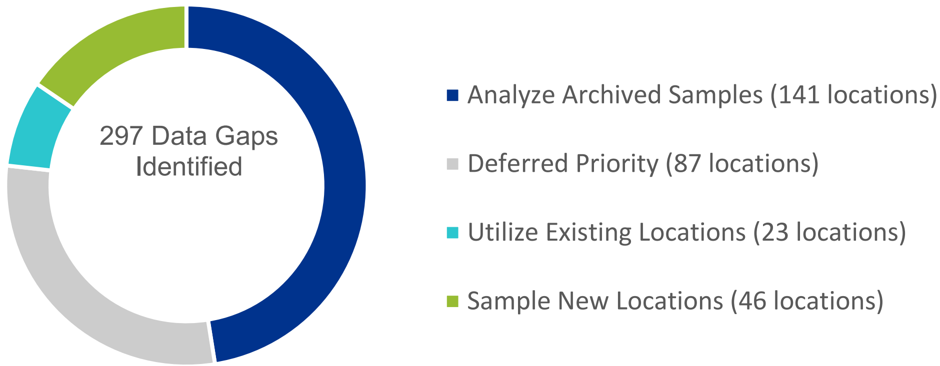
In response to Tribal input regarding the sensitivity of the project area, PG&E and the agencies conducted a detailed prioritization of the remaining data gaps, with the goal of reducing additional sampling.

Of the 297 data gaps identified and prioritized, only 46 resulted in new sampling locations needed:

- 141 locations could be analyzed using archived samples.
- 87 locations were assigned a deferred priority.
- 23 locations would use existing sampling locations.
- 46 locations would require new sampling locations.

Exhibit 2-1 summarizes this information.

Exhibit 2-1. Data Gap Prioritization
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California



The third data gap work plan, *Topock Soil RFI/RI—Plan to Address Data Gaps Identified during Work Plan Implementation* (DGWP-03) (CH2M 2016c) provided information for analysis of archived samples, collection and analysis of additional samples from existing and new locations, and collection and analysis of two debris samples from the ground surface. Sampling activities were conducted at the following investigation units:

- AOC 1 – Area Around Former Percolation Bed (7 new locations)
- AOC 4 – Debris Ravine (4 existing locations, 12 new locations, and 1 debris sample)
- AOC 5 – Cooling Tower A (3 existing locations)
- AOC 6 – Cooling Tower B (2 existing locations)
- AOC 9 – Southeast Fence Line (2 new locations)
- AOC 10 – East Ravine (4 new locations)
- AOC 13 – Unpaved Areas within Compressor Station (2 new locations)
- AOC 14 – Railroad Debris Site (2 new locations)
- AOC 15 – Auxiliary Jacket Cooling Water Pump (1 existing location)
- AOC 16 – Sandblast Shelter (1 new location and 1 debris sample)
- AOC 19 – Former Cooling Liquid Mixing and Former Hotwell Area (2 existing and 4 new locations)
- AOC 21 – Round Depression near Sludge Drying Beds (1 existing location)
- AOC 22 – Unidentified Three-sided Structure (1 existing location and 1 new location)
- AOC 23 – Former Water Conditioning Building (1 new location)
- AOC 27 – MW-24 Bench (1 new location)
- Perimeter Area (7 existing locations)
- SWMU 1 – Former Percolation Bed (4 new locations)
- SWMU 5 – Sludge Drying Beds (1 existing location)
- SWMU 6 – Chromate Reduction Tank (1 existing location)
- Storm Drains (5 new locations)

DTSC provided approval, and DOI provided conditional approval of DGWP-03 in November 2016, in letters that included responses to questions from the following Tribes (DTSC 2016a; DOI 2016b):

- Cocopah Indian Tribe
- FMIT
- Hualapai Tribe

As part of their conditional approval, DOI directed PG&E to establish ambient and BK values for dioxins and furans on federal land to assist with future risk assessment and risk management decision-making. A separate work plan for sampling and analysis activities related to this data gap was developed, *Revised Work Plan for Ambient/Background Study of Dioxins and Furans at the Pacific Gas and Electric Company*

Topock Compressor Station, Needles, California (CH2M 2017a) and was implemented in March 2017. Activities described in this plan included:

- Analysis of archived samples (approximately 235 archived samples from 141 locations)
- Collection and analysis of samples from new locations of interest in determining ambient soil concentrations of dioxins and furans
- Calculation of toxicity equivalent (TEQ) values
- Statistical analysis to determine distribution and outliers
- Calculation of ambient threshold values for each TEQ value

2.6.4 Dioxin and Furan Background Study

A dioxin and furan background study was conducted to assess ambient concentrations of dioxins and furans due to outside sources (CH2M 2017b). Surface samples were collected from areas not expected to be impacted by TCS activities. Ten archived samples from 2008 and 30 samples collected in 2017 were used in the assessment. An ambient threshold value (ATV) was defined based on the 95/95 upper tolerance limit (UTL), which represents a 95% upper confidence bound on the 95th percentile. This offers a value with 95% confidence that at least 95% of BK TEQ values would be less than.

ATVs were determined for dioxin and furan TEQ values for birds and mammals. The following ATVs were calculated using different values for nondetect (ND) results:

- TEQ bird (ND = 0): 4.05 nanograms per kilogram (ng/kg)
- TEQ bird (ND = half the detection limit): 5.98 ng/kg
- TEQ bird (ND = detection limit): 7.791 ng/kg
- TEQ mammals (ND = 0): 2.88 ng/kg
- TEQ mammals (ND = half the detection limit): 5.58 ng/kg
- TEQ mammals (ND = detection limit): 7.53 ng/kg

For use in RFI/RI Volume 3, values based on ND results equal to half the detection limit were used.

2.7 Soil Management

Displaced soil from the Soil RFI/RI investigation was managed in accordance with the *Management Protocol for Handling and Disposition of Displaced Site Material, Topock Remediation Project, Needles, CA of the Soil RCRA Facility Investigation/ Remedial Investigation Work Plan* (Soil Management Protocol) (PG&E 2012).

Typically, soil was returned to its original borehole for hand tool borings, trenches, and potholes. During other activities that generated soil waste, such as drilling and vacuum truck work, soil was collected in a bin or vacuum tank and transferred to a soil staging area located at the TransWestern Bench and put into roll-off bins. The soil was characterized to assess whether it was hazardous or nonhazardous waste. IDW analytical results are presented in Table B-4b in Attachment B4.

Waste soil was generated from various sources and AOCs, as shown in Table B-1 of Appendix B. The following estimated waste was generated and stored in roll-off bins onsite (Table B-2):

- 58 yd^3 (39 tons) of nonhazardous soil waste
- 8 yd^3 of non-RCRA hazardous soil waste
- 11 yd^3 of RCRA hazardous soil waste

Four-point composite samples were collected and analyzed from each soil bin, and results compared to the interim screening levels (ISLs) in the Soil Management Protocol and hazardous waste levels. Hazardous waste was shipped to US Ecology’s approved disposal and receiving faculty in Beatty, Nevada, on April 21, 2016, within 90 days of the accumulation start.

Additionally, 39 tons of nonhazardous soil that exceeded the *Groundwater Remedy Soil Management Plan* (CH2M 2014c) ISLs were shipped to US Ecology's approved disposal and receiving faculty in Beatty, Nevada, on August 4 and August 11, 2020. Waste manifests are presented as Attachment B5. Approximately 200 gallons of water generated during decontamination of sample tools, excavating tools, and drilling and vacuum equipment were stored on the decontamination pad at the TransWestern Bench staging area and transferred to the Topock IM-3 Treatment Plant. Unregulated solid waste (general construction debris) was disposed of in the onsite PG&E dumpsters.

Displaced soil generated during implementation of the investigation was placed in five roll-off bins and stored onsite. Four-point composite samples were collected and analyzed from each bin, and results compared to the ISLs in the Soil Management Protocol. Soil in all five bins exceeded the ISLs; therefore, it was unable to be reused onsite. 39.6 tons of IDW soil was transported for disposal to US Ecology in Beatty, Nevada.

3. Data Summary and Data Quality Objective Evaluation

This volume of the RFI/RI Report considers analytical data for soil and sediment samples collected at the TCS. Samples from soil that has been removed as part of a removal action are not included. In addition, data for a small number of samples of other matrices are included:

- Asphalt
- Concrete
- Debris, tar
- White powder
- Wood

Appendix D provides the laboratory reports for data presented in this report. Data collected during implementation of the Soil RFI/RI Work Plan (CH2M 2013a) and subsequent data gap work plans (CH2M 2016a-c) were validated as described in Appendix E. Validated data were combined with the following existing, validated data sets:

- **Part A, Phase 1 soil investigation data (2008)**. These data were collected in 2008 during implementation of the Draft Soil Part A Work Plan (CH2M 2006). These data were validated as presented in the *Soil Investigation Part A Phase 1 Data Gaps Evaluation Report, PG&E Topock Compressor Station, Needles, California* (CH2M 2012), and in Appendix E of this report.
- **Historical data collected before 2008**. Historical data collected before the Soil RFI/RI were evaluated in the *Final Soil and Sediment Data Usability Technical Memorandum, PG&E Topock Compressor Station, Needles, California* (CH2M 2008b).

The resulting combined data set is referred to in this report as the Combined Soil RFI/RI Data Set. The Combined Soil RFI/RI Data Set spans a wide range of dates, analytical parameters, and data quality. During data validation, the data were classified using three data categories based on data quality:

- Category 1 data are suitable for all uses, including risk assessment and remedial action decisions.
- Category 2 data are suitable for use in characterization of the COPCs at the facility and to help define the nature and extent of contamination; however, the quantitative results should not be used for future critical decision-making purposes.
- Category 3 data are suitable only for use in qualitative characterization of the nature and extent of contamination.

3.1 Part A, Part B, and Perimeter Area Investigations

Data collected during the Part A, Part B, and Perimeter Area Investigations were tabulated and evaluated against the Part A and Part B DQOs on a unit by unit basis. Perimeter Area samples were assigned to Part A or Part B investigation units and evaluated with these units. Perimeter Area samples assigned to Part A investigation units were screened against residential and ecological screening levels, which are more conservative than CSLs. Perimeter Area data outside of the TCS fence line were also addressed as a discrete set of data as part of Part B DQO Decision 4 – Offsite migration assessment[4].

The comparison against screening levels in this RFI/RI is for DQO evaluation, which includes the following activities:

- Nature and extent characterization
- Data sufficiency evaluation
- Evaluation of potential threat to groundwater
- Offsite migration assessment

[4] Throughout this document, offsite migration refers to movement of contaminants from inside the TCS fence line to outside the TCS fence line.

The comparison is not for the purposes of risk assessment. The approach to the offsite migration assessment applied in this RFI/RI is consistent with the approach to evaluate offsite migration that was specified in Appendix C of the RFI/RI Work Plan and summarized in Section 3.3 of the 2015 Risk Assessment Work Plan Addendum 2. A summary of the Soil HHERA is presented in Section 5 of this report.

3.1.1 Data Summary

The Combined Soil RFI/RI Data Set is presented in a series of Sample Results and Constituent Concentrations in Soil Compared to Screening Values tables designated Tables 3-1 through 3-35. The Sample Results tables are organized by unit and by the following analytical groups (as appropriate):

- Metals
- Contract Laboratory Program (CLP) inorganics
- PAHs
- Semivolatile organic compounds (SVOCs) and volatile organic compounds (VOCs)
- TPH
- General chemistry parameters
- Pesticides
- PCBs
- Dioxins and furans
- Asbestos

Figure 3-1 shows the sample locations for data presented in these tables.

Data for the Part A investigation units (including Perimeter Area samples) were screened against the following residential and ecological screening levels and BK values:

- U.S. Environmental Protection Agency (EPA) residential regional screening levels (RRSLs) (EPA 2017)
- Residential DTSC screening levels (DTSC-SLs) (DTSC 2017a, 2018)
- Ecological comparison values (ECVs) (Arcadis 2008b, 2009a)
- Threshold effect concentrations (TECs) that were obtained from MacDonald et al. (2000) for comparison with sediment results, in accordance with the approved *Risk Assessment Work Plan* (Arcadis 2008a).
- BK values (CH2M 2009c, 2017b)
- California RWQCB environmental screening levels (ESLs) (TPH only) (RWQCB 2016)

In addition, an ISL was selected for each analyte for Part A investigation units. For metals and CLP inorganics, which have robust BK data sets, the BK value was selected as the ISL. If a BK value was not available, then the lesser of the ECV, residential DTSC-SL, or EPA RRSL (as available) was selected as the ISL. For TPH, the RWQCB ESL was selected as the ISL. For all other analytes, the lesser of the ECV, residential DTSC-SL, or EPA RRSL (as available) was selected as the ISL, unless the BK value is greater. As agreed upon during the investigation process, the avian and human ISLs were used to define nature and extent for dioxin and furans because the TEQ mammal ISL of 5.58 ng/kg, based on BK, is very conservative and extremely low.

Data for the Part B investigation units were screened against the following CSLs and BK values (established for metals and CLP inorganics, only):

- CSL (lesser of commercial DTSC-SL [DTSC 2018] or EPA Commercial Regional Screening Level [RSL] [EPA 2017])
- RWQCB ESL (TPH only) (RWQCB 2016)
- BK (CH2M 2009c, 2017b)

Screening levels and BK levels for Part A and Part B units are provided in Tables 3-36a through 3-36h.

Where applicable, data are discussed in Section 4 in terms of their factor of exceedance (FOE), calculated by dividing a sample concentration by the applicable screening level. Additionally, data that exceed ISLs may be compared to risk-based remedial goals (RBRGs) and risk-based concentrations (RBCs). ISLs are conservative screening levels that do not account for Site-specific conditions. RBRGs and RBCs were developed in the HHERA (Arcadis 2019) and consider Site-specific exposure scenarios for the TCS site. The development of RBRGs and RBCs is also summarized in Sections 5.5 and 5.6 of this report.

RBRGs are concentrations that do not present unacceptable risk to human health and ecological receptors. RBCs were developed for the Soil Management Plan to be used to support decisions for the handling, management, and storage of potentially contaminated and displaced soil at the Site. The additional comparison to RBRGs and RBCs may determine that although concentrations at a given location exceed conservative ISLs, Site-specific values are not exceeded; therefore, a DQO data gap may not be present.

The process used to assess whether a DQO has been satisfied (that is, presence of data gaps) is presented as a flow chart (Exhibit 3-1).

AOC 4 – Debris Ravine is unique in that some samples were taken outside the fence line and some inside the fence line. For this unit, two sets of Sample Results tables are presented: one set screens outside the fence line results against the Part A Investigation screening levels (Tables 3-3a through 3-3f), and one set screens inside the fence line results against the Part B Investigation screening levels (Tables 3-4a through 3-4j).

In addition to the Sample Results tables, a Constituent Concentrations in Soil Compared to Screening Values table is presented for each unit with analytical data. These tables provide a statistical summary of the following information:

- Number of locations sampled
- Frequency of detection
- Maximum detected value
- Number of screening level exceedances for each analyte evaluated

Only soil and sediment samples are considered in the statistical summary tables. Samples from other matrices, such as wood, debris, tar, and white powder, are included in the Sample Results tables but are not part of the comparison analyses because they are not necessarily representative of underlying soil conditions. Tables 3-1 through 3-35 identify the sample matrices. Samples were designated as non-soil matrices only when the entire sample comprised that material (for example, debris, white powder). Soil sample counts presented in the statistical summary tables do not include duplicate (quality control [QC]) soil samples. At locations where duplicate samples were collected, the greater of the two values was included in the statistical summary tables. The number of exceedances is the number of detections that are equal to or exceed the respective screening and comparison values. For BK or ambient values, exceedances are the number of detections exceeding the BK or ambient value (that is, if a detected concentration is equal to the BK or ambient value, it is considered to be within BK or ambient concentrations).

Figures 3-2 through 3-17 show the data. For the Part A investigation units, a figure is included if an analyte was detected at concentrations exceeding the ISL four or more times in a unit. For the Part B investigation units, a figure is included if an analyte was detected exceeding the CSL, RWQBC ESL, or BK four or more times in a unit.

Soil parameter data collected to support future CMS/FS decisions and remedial action design, including Atterberg limits and particle size distribution, are presented in Table 3-37 for Part A investigation units and Table 3-38 for Part B investigation units.

Exhibit 3-1. Data Quality Objective Process Flow Chart
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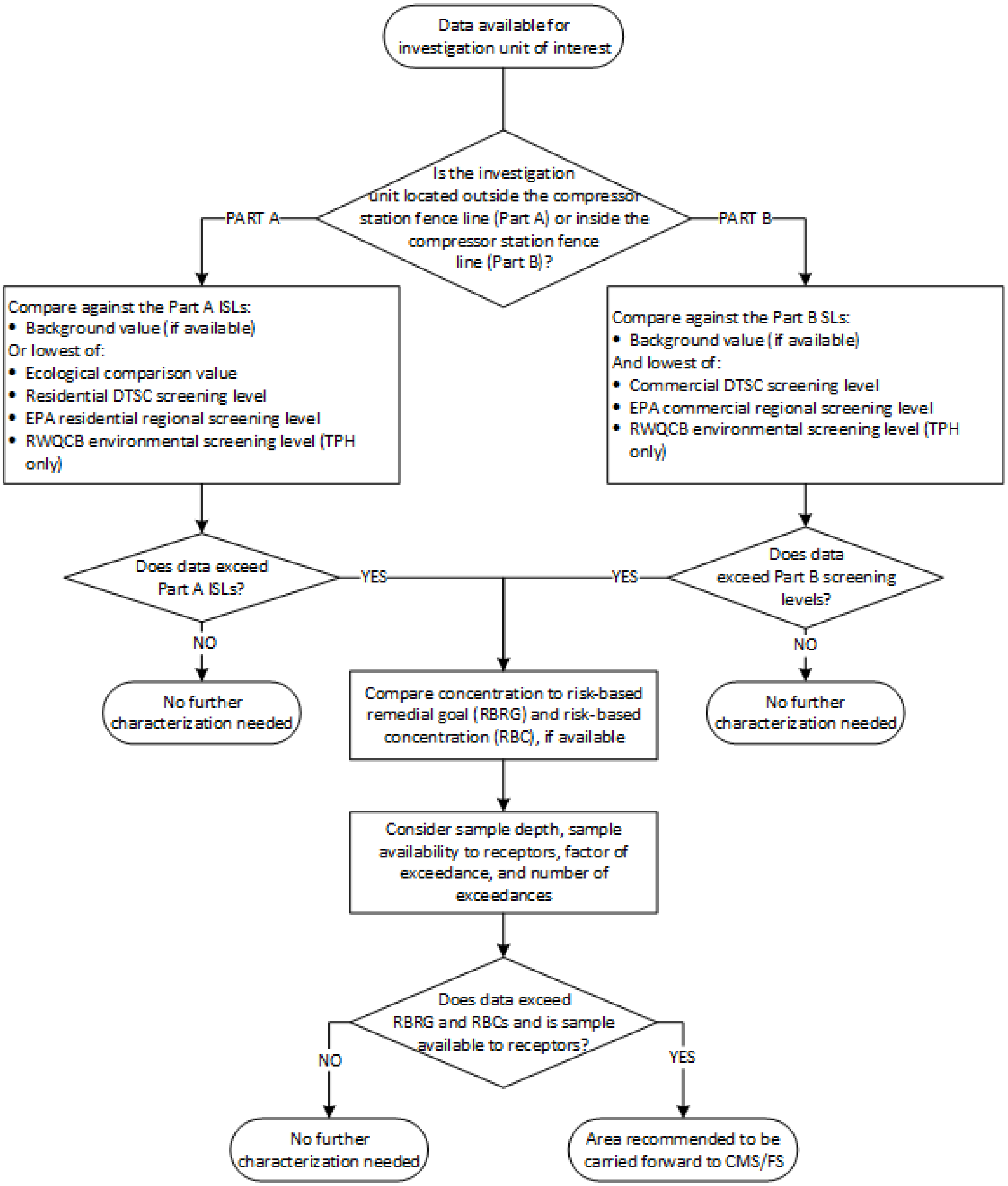
PG&E Topock Compressor Station, Needles, California



3.2 Storm Drain System Investigation

There were two primary goals of the storm drain investigation:

1. Gather information about the storm drain and industrial floor drain line alignments
2. Gather samples to evaluate potential discharges from storm drains to soil

The investigation was conducted in phases over 2016 and 2017 and consisted of the following steps:

1. Visual field verification of the previous record search
2. Flow testing
3. Video camera tracing
4. Storm drain soil investigation

The steps were performed in sequence, and in some cases, over multiple iterations so that each step benefited from the information collected during the previous step. Each of the tasks is described in Appendix B. During flow testing, samples of the water discharged from the storm drains were captured and retained for analysis. Table 3-40 provides the analytical results for these flush water samples. Investigated storm drain and industrial floor drain alignments are shown on Figures 3-19 and 3-20, respectively.

Where available, sediment in catch basins (CBs) associated with the storm drains was sampled for analysis (most of the CBs contained very little sediment). Analytical results for the CB sediment samples are presented in Table 3-41 and screened against appropriate ISLs. Sediment from the CBs was removed during the investigation and is no longer present onsite. To support the evaluation of potential impacts to soil from storm drains, soil samples were collected at the outfalls of known storm drains. Analytical results for these soil samples are included in the Combined Soil RFI/RI Data Set and have been assigned to relevant Part A and Part B investigation units. Tables 3-1 through 3-35 present the analytical results with data for the relevant units.

The results of the storm drain and floor drain investigations, including soil samples collected and identification and fulfillment of data gaps, are summarized in Table 3-42 and Table 3-43, respectively.

3.3 Hazardous Waste Assessment

All samples in the Combined Soil RFI/RI Data Set were compared California total threshold limit concentration (TTLC) hazardous waste concentrations. If concentration in solid waste (for example, soil) is greater than the TTLC, then it is classified as hazardous in California. All soil, debris, and CB sediment samples collected during the Part A, Part B, Storm Drain, and Perimeter Area investigations were screened against the TTLCs to identify areas where in situ soil, sediment, or debris may exceed hazardous waste limits and require special handling if removed. Samples with concentrations exceeding the TTLCs are presented in Table 3-44 and on Figure 3-21.

There were TTLC exceedances of the following compounds:

- Total chromium (CrT)
- CrVI
- Copper
- Mercury
- Lead

TTLC exceedances are discussed in more detail in the investigation units corresponding to the samples throughout Section 4 in this report.

3.4 Updated Screening Level Sensitivity Evaluation

Table 3-45 lists analytes with screening levels that were updated during the RFI/RI Volume 3 review process. It was agreed upon during the RTC process that the nature and extent assessment presented in Section 4 would not be redone with the updated screening levels; however, a sensitivity evaluation of the effects of the changes would be completed. The updated values are provided along with the original screening levels used throughout this document for comparison.

An evaluation of the effects of the changes in screening levels was conducted to determine how many additional locations have ISL (Part A units) and CSL (Part B units) exceedances with the change in screening levels. For Part A units, changes to residential screening levels do not affect determination of nature and extent for analytes that have ISLs based on BK values or ECVs (for example, metals and total PCBs). However, there was the potential for changes to the number of exceedances for some analytes with ISLs based on human health screening levels. For Part B units, all changes to CSLs have the potential to affect determination of nature and extent.

Of the 112 analytes listed in Table 3-45 with updated screening levels, only 7 had changes to soil exceedance counts:

1. Cadmium
2. Dibenzo(a,h)anthracene
3. Benzo(a)pyrene (B[a]P)
4. Total petroleum hydrocarbons as diesel (TPH-d)
5. Total PCBs
6. Aroclor 1254
7. Aroclor 1260

The screening levels for cadmium and TPH-d increased, resulting in fewer samples with exceedances.

The screening levels for dibenzo(a,h)anthracene and B(a)P decreased, resulting in 13 dibenzo(a,h)anthracene and 4 B(a)P new exceedances. There were no changes to the screening levels for B(a)P equivalents, low molecular weight (LMW) PAHs, or high molecular weight (HMW) PAHs, which were used to evaluate risks to human health and ecological receptors. However, per DTSC Human and Ecological Risk Office (HERO) Note 4 (DTSC 2022), DTSC recommends that individual carcinogenic PAHs be evaluated in screening level risk assessments instead of calculating B(a)P equivalents.

The new dibenzo(a,h)anthracene exceedances were all ND results with reporting limits exceeding the new screening level of 310 milligrams per kilogram (mg/kg). Of the four new B(a)P exceedances, three are from samples already considered to have exceedances of B(a)P equivalents; therefore, they do not affect the determination of nature and extent. The one new sample that was not previously identified as having a PAH exceedance is at AOC 13 at SD-OS42 from 3 to 4 feet bgs (1,500 mg/kg). As a deeper sample (5 to 6 feet bgs) collected from the same location was ND for all PAHs, the vertical extent of exceedances is considered defined to the updated screening level, and there is no change to the nature and extent determination.

The screening levels for Aroclor 1254, Aroclor 1260, and total PCBs decreased, resulting in the following new samples with exceedances:

- Eight for Aroclor 1254
- Two for Aroclor 1260
- Nine for total PCBs

As Aroclor 1254 and Aroclor 1260 are included in the total PCB concentration, further discussion focuses on changes to total PCB exceedances. Additionally, of the newly exceeding locations for Aroclor 1254 and 1260, all are either included in the new total PCB exceedances, or the samples were previously identified with total PCB exceedances and were included in the original assessment of nature and extent.

The new total PCB exceedance at SWMU11 – Former Sulfuric Acid Tanks (SWMU11-1) may indicate lateral impacts greater than initially identified with original CSLs. However, the total PCB concentration at this location (625.5 JR[5] micrograms per kilogram ([µg/kg]) is less than the RBC (1,990 µg/kg). Although the lateral extent of PCB exceedances is not defined to the updated screening level, the exceedance does not present an unacceptable risk to receptors. Therefore, the lateral extent of PCBs is not considered a data gap that requires filling.

The new total PCB exceedances at the following areas may indicate lateral and vertical impacts greater than initially identified with original CSLs:

- AOC5 – Cooling Tower A
- AOC 6 – Cooling Tower B
- AOC 20 – Industrial Floor Drains, including:
  - AOC5-2
  - AOC6-2
  - AOC6-6
  - AOC6-8
  - AOC20-OS08
  - AOC20-OS09

However, Decision 1 (nature and extent determination) has been deferred for these units until the areas become available for sampling. Therefore, additional total PCB exceedances in this area do not affect the current determinations for the following areas:

- AOC 5
- AOC 6
- AOC 20

The new total PCB exceedance at AOC 13 – Unpaved Areas within the TCS (AOC13-33) may indicate vertical impacts greater than initially identified with original CSLs. However, this part of AOC 13, the slope between AOC 6 and the lower yard, was already determined to not be defined vertically for these other compounds:

- Dioxins and furans
- CrVI
- Lead

Therefore, an additional total PCB exceedance in this area does not affect the current determination for AOC 13.

The new total PCB exceedance at AOC 23 – Former Water Conditioner Building (AOC23-3) may indicate lateral impacts greater than initially identified with original CSLs. However, this sample was already identified as a potential data gap for dioxins and furans. Therefore, an additional total PCB exceedance in this sample does not affect the current determination for AOC 23.

Based on this discussion, updated screening values did not impact the nature and extent evaluations for the RFI/RI.

[5] JR = Estimated value; one or more input values is “R” qualified.
R = The result has been rejected; identification, quantitation, or both could not be verified because critical QC specifications were not met (for example, an ND result obtained for an archive sample following a hold time of more than 1 year).

4. Remedial Investigation Summaries for Investigation Areas

This section presents an evaluation of the Combined Soil RFI/RI Data Set and soil parameter data against the Part A and Part B DQOs (introduced in Sections 2.3 and 2.4). The purpose of this evaluation is to evaluate data completeness and identify the remaining data gaps to be addressed in the CMS/FS and IMs. The evaluation considers either Category 1 data only or Category 1 and Category 2 data, depending on the DQO (data categories are defined in Section 3).

Sections 4.1 and 4.2 present the investigation summaries for the SWMUs, AOCs, and UAs in the Part A and Part B investigation areas, respectively. These sections include the following types of information:

- Unit setting
- History
- Field observations
- Comparison of analytical data to relevant screening levels
- Discussions of the nature and extent of contamination, contaminant sources, and fate and transport of contamination
- Evaluation of results against the DQOs
- Updated CSMs

Section 4.3 provides the results of the storm drain investigation. Section 4.4 provides the results of the Perimeter Area Investigation. Section 4.5 summarizes the data gaps identified during this evaluation.

For the Part A units, the following DQO decisions and data have been considered:

- **Decision 1 – Nature and extent determination**: Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set (presented in Tables 3-1 through 3-35) were evaluated to determine the completeness of the data for determining nature and extent of residual soil and/or sediment concentrations resulting from historical TCS practices.
- **Decision 2 – Data sufficiency for EPC calculation**: Category 1 data from the Combined Soil RFI/RI Data Set (presented in Tables 3-1 through 3-35) were evaluated to determine sufficiency of the data to support the EPC calculation.
- **Decision 3 – Threat to groundwater determination**: Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set (presented in Tables 3-1 through 3-35) were used to determine whether residual soil concentrations resulting from historical TCS practices may threaten groundwater as described in Appendix C.
- **Decision 4 – Data sufficiency to support CMS/FS and/or IMs**: Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set (presented in Tables 3-1 through 3-35), which describe contaminant distribution, were evaluated for data sufficiency to support the CMS/FS and/or IMs if required. In addition, soil property data (presented in Tables 3-37 and 3-38) were evaluated for data sufficiency to support the CMS/FS and/or IMs.

For the Part B units, the following DQO decisions and data have been considered:

- **Decision 1 – Nature and extent determination**. Category 1 and Category 2 data were evaluated as described for Part A DQO Decision 1.
- **Decision 2 – Data sufficiency for EPC calculation**. Category 1 data were evaluated as described for Part A DQO Decision 2.

- **Decision 3 – Threat to groundwater determination**. Category 1 and Category 2 data were evaluated as described for Part A DQO Decision 3.
- **Decision 4 – Offsite migration assessment**. Category 1 data for surface soil (collected between 0 and 1 foot bgs) from the Combined Soil RFI/RI Data Set were evaluated to determine whether concentrations inside the TCS fence line may pose a potentially unacceptable risk to receptors outside the compressor station fence line via the surface migration pathway. The subset of data considered in this evaluation are presented in Tables 3-39a though 3-39i and summarized in Table 3-39j and on Figure 3-18.
- **Decision 5 – Data sufficiency to support CMS/FS and/or IMs**. Category 1 and Category 2 data were evaluated as described for Part A DQO Decision 4.

A summary of the data evaluation compared against the DQOs for Part A and Part B is presented in Exhibits 4-1 and 4-2, respectively. The results of the evaluation indicate that DQOs have been satisfied for most investigation areas but also identified some areas where determination of the full nature and extent of contamination is not feasible or warranted. Uncertainties regarding the nature and extent of impacts can be addressed during the CMS/FS, IMs, and remedial design or remediation, if necessary to inform specific discussions.

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Exhibit 4-1. Summary of Evaluation Against Data Quality Objectives – Part A Investigation
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Investigation Unit	Decision 1 (Nature and Extent Determination)[a]		Decision 2 (Data Sufficiency for EPC Calculation)[b]		Decision 3 (Threat to Groundwater Determination)[c]		Decision 4 (Data Sufficiency to Support CMS/FS and/or IMs)[d]		Summary of Evaluation[e]
	DQO Satisfied	Data Gaps	DQO Satisfied	Data Gaps	Potential Threat to Groundwater	Data Gaps	DQO Satisfied	Data Gaps	
SWMU 1: Former Percolation Bed	No	Yes	Yes	No	No	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 1: Area Around Former Percolation Bed	No	Yes	Yes	No	No	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 4: Debris Ravine	Yes	No	Yes	No	No	No	No	Yes	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 9: Southeast Fence Line	No	Yes	Yes	No	No	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 10: East Ravine	No	Yes	Yes	No	No	No	No	Yes	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 11: Topographic Low Areas	No	Yes	Yes	No	No	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 12: Fill Areas	Yes	No	Yes	No	No	No	No	Yes	Data gap identified, but no further action recommended.
AOC 14: Railroad Debris Site	No	Yes	Yes	No	No	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 27: MW-24 Bench	No	Yes	Yes	No	No	No	No	Yes	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 28: Pipeline Drip Legs	Yes	No	Yes	No	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 29: IM-3 Treatment Plant	Deferred	Deferred	Deferred	Deferred	Deferred	Deferred	Deferred	Deferred	DQOs deferred until IM-3 Treatment Plant is decommissioned.
AOC 30: MW-20 Bench	Deferred	Deferred	Deferred	Deferred	Deferred	Deferred	Deferred	Deferred	DQOs deferred until after groundwater remedy decommissioning sampling is completed.
AOC 31: Former Teapot Dome Oil Pit	Yes	No	Yes	No	No	No	No	Yes	Data gap identified, but no further action recommended.
UA-1: Pipeline Disposal Area	Not Investigated	Not Investigated	Not Investigated	Not Investigated	Not Investigated	Not Investigated	Not Investigated	Not Investigated	Area not investigated at request of Tribes.
UA-2: Former 300B Pipeline Drip Tank	Yes	No	Yes	No	No	No	No	Yes	Data gap identified, but no further action recommended.

[a] **Decision 1 (Nature and Extent Determination):** Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

[b] **Decision 2 (Data Sufficiency for EPC Calculation):** Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

[c] **Decision 3 (Threat to Groundwater Determination):** Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

[d] **Decision 4 (Data Sufficiency to Support CMS/FS and/or IMs):** Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[e] Details are provided in individual investigation unit write-ups in Section 4.1 and in Section 4.5, Exhibit 4-38.

Notes:

Deferred = Analysis deferred until after the groundwater remedy decommissioning sampling is completed (for AOC 30) and after confirmation sampling to be conducted as part of the IM-3 decommissioning and removal is completed (for AOC 29).

This exhibit summarizes the results of the Combined Soil RFI/RI Data Set and soil parameter data evaluated against the Soil Part A DQOs. The technical memorandum *Data Quality Objectives – Part A Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (CH2M 2010) describes the decision statements that were identified for this evaluation, as reflected in the columns of this table:

Conditions that would require recalculation of the EPC could include detection of new compounds not evaluated or COPC concentrations that are significantly greater than currently detected concentrations.

Exhibit 4-2. Summary of Evaluation Against Data Quality Objectives – Part B Investigation
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

	Decision 1 (Nature and Extent Determination)[a]		Decision 2 (Data Sufficiency for EPC Calculation)[b]		Decision 3 (Threat to Groundwater Determination)[c]		Decision 4 (Offsite Migration Assessment)[d]			Decision 5 (Data Sufficiency to Support CMS/FS and/or IMs)[e]		
Investigation Units	DQO Satisfied	Data Gaps	DQO Satisfied	Data Gaps	Potential Threat to Groundwater	Data Gaps	DQO Satisfied	Potential Risk to Offsite Receptors[f]	Data Gaps	DQO Satisfied	Data Gaps	Summary of Evaluation[g]
SWMU 5: Sludge Drying Beds	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No data gaps identified; all DQOs satisfied.
SWMU 6: Chromate Reduction Tank	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
SWMU 8: Process Pump Tank	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
SWMU 9: Transfer Pump	Yes	No	Yes	No	No	No	N/A	N/A	N/A	N/A	N/A	DQO 4 not assessed; no surface soil samples collected.
SWMU 11: Former Sulfuric Acid Tanks	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 5: Cooling Tower A	Deferred	Deferred	Yes	No	Deferred	Deferred	Yes	No	No	Deferred	Deferred	DQOs 1, 3, and 5 deferred until unit becomes available for sampling.
AOC 6: Cooling Tower B	Deferred	Deferred	Yes	No	Deferred	Deferred	Yes	No	No	Deferred	Deferred	DQOs 1, 3, and 5 deferred until unit becomes available for sampling.
AOC 7: Hazardous Materials Storage Area	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 8: Paint Shed	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 13: Unpaved Areas within the TCS	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	No	Data gap identified; assess need for additional sampling, evalute remediation options in CMS/FS, or both.
AOC 15: Auxiliary Jacket Cooling Water Pumps	Yes	No	Yes	No	Deferred	Deferred	Yes	No	No	Yes	No	DQO 3 deferred until unit becomes available for sampling.
AOC 16: Former Sandblast Shelter	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 17: Onsite Septic System	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 18: Combine Wastewater Transference Pipelines	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 19: Former Cooling Liquid Mixing and Hotwell Area	Deferred	Deferred	Yes	No	Deferred	Deferred	Yes	No	No	Deferred	Deferred	DQOs 1, 3, and 5 deferred until unit becomes available for sampling.
AOC 20: Industrial Floor Drains	Deferred	Deferred	Yes	No	No	No	Yes	No	No	Deferred	Deferred	DQOs 1 and 5 deferred until unit becomes available for sampling.
AOC 21: Round Depression near Sludge Drying Bed	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 22: Unidentified Three-Sided Structure	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 23: Former Water Conditioning Building	No	Yes	Yes	No	No	No	Yes	No	No	Yes	No	Data gap identified; assess need for additional sampling in CMS/FS.
AOC 24: Stained Area and Former API Oil/Water Separator	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
AOC 25: Compressor and Generator Engine Basements	Deferred	Deferred	Yes	No	Deferred	Deferred	Yes	No	No	Deferred	Deferred	DQOs 1, 3, and 5 deferred until unit becomes available for sampling.
AOC 26: Former Scrubber Oil Sump	Deferred	Deferred	Yes	No	No	No	Yes	No	No	Yes	No	DQO 1 for soil vapor deferred until area is available for sampling.
AOC 32: Oil Storage Tanks and Waste Oil Sump	Deferred	Deferred	Yes	No	Deferred	Deferred	Yes	No	No	Deferred	Deferred	DQOs 1, 3, and 5 deferred until unit becomes available for sampling.
AOC 33: Potential Former Burn Area near AOC 17	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
Units 4.3, 4.4, and 4.5	Yes	No	Yes	No	No	No	Yes	No	No	Yes	No	No data gaps identified; all DQOs satisfied.
Portions of AOC 4 Inside the Fence Line (Section 4.1.2)	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	Data gaps identified; assess need for additional sampling in CMS/FS.

[a] **Decision 1 (Nature and Extent Determination):** Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

[b] **Decision 2 (Data Sufficiency for EPC Calculation):** Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

[c] **Decision 3 (Threat to Groundwater Determination):** Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

[d] **Decision 4 (Offsite Migration Assessment):** Determine whether residual soil concentrations inside the fence line resulting from past compressor station practices pose a potentially unacceptable risk to receptors outside the compressor station fence line via the surface migration pathway. If a potentially unacceptable risk to receptors outside fence line exists, or if determination of potential risk to receptors outside fence line based on sample data is not feasible, develop controls to eliminate migration pathways or remove contaminated soil.

[e] **Decision 5 (Data Sufficiency to Support CMS/FS and/or IMs):** Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[f] **Potential Risk to Offsite Receptors:** Yes = Concentrations in this unit may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway.

[g] Details are provided in individual investigation write-ups in Section 4.2 and in Section 4.5, Exhibit 4-38.

Notes:

Deferred = Analysis deferred because of substantial access constraints, active use of buildings, and physical dangers. Soil data will be collected when the area become available.

This exhibit summarizes the results of the Combined Soil RFI/RI Data Set and soil parameter data evaluated against the Soil Part B DQOs. The technical memorandum *Data Quality Objectives – Part B Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (CH2M 2011b) describes the decision statements that were identified for this evaluation, as reflected in the columns of this table.

Conditions that would require recalculation of the EPC could include detection of new compounds not evaluated or COPC concentrations that are significantly greater than currently detected concentrations.

N/A = not applicable; data not collected

4.1 Part A Investigation

This section provides details about the Part A investigation by sampling area.

4.1.1 SWMU 1 and AOC 1 – Former Percolation Bed and Area Surrounding SWMU 1

This section provides details about the investigations at SWMU 1 and AOC 1.

4.1.1.1 Setting

SWMU 1, the Former Percolation Bed, is located outside the facility fence line west of the TCS in the bed of Bat Cave Wash, a north–south oriented dry wash adjacent to the TCS. AOC 1 consists of the area that surrounds SWMU 1 and extends to the north toward the Colorado River. The SWMU 1 and AOC 1 investigation areas are addressed as a single investigation area and are depicted on Figures 2-1 and 4-1a through 4-1k. AOC 1 is divided into northern and southern regions (AOC 1 north and AOC 1 south) by railroad tracks immediately north of I-40. AOC 1 also includes TCS-4 (Figure 4-1a). TCS-4 was a temporary water supply well that was later converted into a waste injection well located within AOC 1 south, west of the TCS and north of SWMU 1 (Figures 4-1b and 4-1c).

About half of SWMU 1 is located on PG&E property; the remainder of SWMU 1 is located on property owned by the HNWR and managed by FWS. AOC 1 is located partially on PG&E property, partially on the HNWR, partially on BOR property (managed by BLM), partially on BNSF land, and partially on FMIT property, with PG&E as the easement holder.

An ephemeral stream flows within Bat Cave Wash following intense rainfall events and drains north to the Colorado River approximately 1 mile downstream from the TCS. Bat Cave Wash is bounded by steep sidewalls, with the TCS at an elevation of approximately 630 feet and the SWMU 1 and AOC 1 area 90 feet lower, at an elevation of approximately 540 feet at the drainage floor.

The study area comprises Quaternary alluvial sediments consisting of unconsolidated sandy gravel and silty and clayey gravel, which overlay Tertiary alluvial deposits consisting of moderately consolidated sandy gravel and silty and clayey gravel.

The obstruction of stream flow by NTH just before the wash enters the Colorado River has resulted in widening of the channel near the end of Bat Cave Wash. The obstruction of stream flow greatly reduces the energy of flow during runoff events, resulting in deposition of entrained soil within the highly vegetated area in AOC 1 north. The blockage at NTH predates the TCS. The BNSF railroad bridge that crosses the wash and associated culvert also predates the TCS. I-40 was built in the 1960s, resulting in construction of the I-40 bridge and culverts across the wash.

Bat Cave Wash is dynamic in nature and experiences both erosional and depositional events. Changes in surface elevation have been observed at specific locations in the wash during periods of net sediment accumulation and net sediment removal. It is also possible that construction activities at the TCS have contributed to non-natural deposition of sediment in Bat Cave Wash (for example, earthwork activities during the construction of the northern portion of the lower yard). Presently, surface elevations within the Bat Cave Wash are expected to continue to rise, in part, due to the blockage of the mouth of the wash by the NTH. Based on the elevation differential between the top of TCS-4 and ground surface, it appears a net deposition of up to 4 to 5 feet of sediment has occurred from natural deposition or due to PG&E operational activities since installation of TCS-4 in 1950.

Figures 4-1b through and 4-1k are graphical CSMs and cross sections showing topography and subsurface geology at SWMU 1 and AOC 1.

4.1.1.2 Unit History

From 1951 to approximately 1971, the TCS discharged wastewater containing chromium (cooling tower blowdown) into Bat Cave Wash.

Based on historical aerial photographs provided on the following pages and in Appendix A, it appears that during the 1950s, the TCS discharged wastewater into the wash without any impoundment. Wastewater was released to the wash through two pipes that ran from the water softener sludge drying bed area in the TCS lower yard down the slope into Bat Cave Wash (only the eastern sludge drying bed was in existence at this time). These pipes are shown on the May 19, 1955 photographs presented at the end of this section (Photographs 4.1.1-1 and 4.1.1-2) and also on Figures 4-1b and 4-1c as "historical discharge piping."

1955 aerial photographs show a light-colored flow in the wash that originates at the discharge point and, at times, extends to the railroad tracks about 1,600 feet downstream. The light-colored flow does not extend beyond the railroad tracks. The railroad tracks and associated culverts predate construction of the TCS. I-40 was constructed in the 1960s and is not present on the 1955 photographs.

Based on aerial photograph and document review, in about 1964, a percolation bed (SWMU 1) was created in Bat Cave Wash west of the former sludge drying beds area, now referred to as SWMU 5. PG&E documentation indicates that the percolation bed had an area of approximately 17,600 square feet (PG&E 1968). Wastewater was discharged to this area from two pipelines (one 10-inch-diameter pipe and one 4-inch-diameter pipe) that ran from the lower yard down into Bat Cave Wash (Figures 4-1b and 4-1c). The bed was not lined, and discharged wastewater was allowed to percolate into the ground or evaporate in this area. A former employee reported that the percolation bed sometimes crusted over, and that it was periodically moved within the wash, but was within the general area shown on Figure 2-1 (Russell, pers. comm. 2006a). Ponded water can be seen in this general area of the percolation bed in aerial photographs from 1967 and 1969 (Appendix A). In these photographs, the remnants of the 4-inch-diameter discharge pipe are also present on the slope above Bat Cave Wash.

As described in RFI/RI Volume 1, continuous discharge of wastewater to Bat Cave Wash ceased in May 1970 when injection well PGE-08 was brought online. However, between May 1970 and September 1971 (when Pond No. 1 of the Old Evaporation Ponds was completed), some treated wastewater may have been temporarily discharged to the percolation bed in Bat Cave Wash when injection well PGE-08 was offline for repairs or maintenance.

Wastewater discharged to Bat Cave Wash consisted primarily of cooling tower blowdown (about 95 %) and a minor volume of effluent from an OWS and other facility maintenance operations (about 5%) (PG&E 1993). Based on information from PG&E (1968), during the late 1960s, an average of about 48,500 gallons per day (gpd) of cooling water blowdown were discharged to Bat Cave Wash, with a high of about 64,300 gpd in July and a low of about 25,600 gpd in February.

From 1951 until 1964, cooling water blowdown was not treated before being released to the wash. The cooling water blowdown contained chromium, including CrIII and primarily CrVI. From 1964 to 1969, the cooling water blowdown was treated with a one-step system to reduce CrVI in the wastewater to CrIII before discharge to the wash. Although the process converted CrVI to CrIII, the concentration of dissolved CrT remained elevated due to the pH of 3.4-3.5 in the treated water in the treatment pond. There was consequently little or no sludge generated in the treatment pond during this period. The water from the treatment pond was then transferred to what was then referred to as the holding pond, herein referred to as the percolation pond (SWMU 1), where higher pH conditions resulted in precipitation of the CrIII at the surface and shallow soil depths.

White powder material was encountered during early investigations along the eastern slope of SWMU 1, below the sludge drying beds. Two possible sources of white powder material are residual mineral salts from the percolation pond and water conditioning (lime treatment) sludge from the sludge drying beds. Lime treatment is a process involving addition of lime (calcium hydroxide) and soda ash and sometimes other flocculants or caustic chemicals to remove hardness (calcium and magnesium ions) from water. Both lime and soda ash were used at the TCS. The water conditioning sludge is primarily calcium carbonate with smaller quantities of magnesium hydroxide, both of which are poorly soluble at normal pH.. Water conditioning sludge is generally low in contaminant concentrations, whereas residual mineral salts from the percolation bed may contain greater concentrations of chromium. Additionally, white water softener conditioning sludge could have been contaminated by chromium discharges and yield high chromium values.

Exhibit 4-3 is a summary of major structural projects and regulatory changes at the TCS, including those that may have impacted Bat Cave Wash. Information provided in Exhibit 4-3 is based on review of engineering drawings, historical reports, and interviews with previous TCS employees.

Exhibit 4-3. Chronology of Major Operational Changes
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Year	Action
1951	TCS begins operation with the following equipment: • Six compressor units (K-1 through K-6) • Three generator units (P-1 through P-3) • One four-cell cooling tower (Cooling Tower A) Cooling tower blowdown discharged directly to Bat Cave Wash.
1953	Two additional compressor units (K-7 and K-8) and one additional generator unit (P-4) are installed.
1954	Another compressor unit (K-9) is installed. Cooling Tower B is constructed (two cells).
1957	Another compressor unit (K-10) is installed.
1958	Cooling Tower B is expanded to four cells.
1960 to 1961	Use of water production wells PG&E No. 1 and No. 2 ceases; water for the facility is procured from wells across the Colorado River in Topock, Arizona (Topock wells No. 1 and No. 2).
1962	Original Permutit water conditioning unit is removed from service; canister-type water conditioning system is installed.
1964	Single-step treatment system to reduce CrVI in cooling water blowdown is installed; a percolation bed for impoundment of treated cooling tower blowdown is constructed in Bat Cave Wash.[a]
1964 to 1966	I-40 is constructed. Wells PG&E No. 1 and No. 2 are destroyed, and new standby wells PGE-06 and PGE-07 are installed.
1969	Two-step treatment system to reduce CrVI and remove chromium from cooling tower blowdown is installed. Injection well PGE-08 is also installed.
1970	Use of injection well PGE-08 for underground injection of facility wastewater begins. From May 1970 to September 1971, wastewater is diverted to a percolation bed when injection well PGE-08 is out of service. Gas scrubbers are removed from service between the mid-1960s and 1970.
1971	Construction of single-lined evaporation Pond No. 1 is completed. From September 1971 to August 1973, Pond No. 1 receives facility wastewater only when injection well PGE-08 is out of service. Between August and December 1973, wastewater disposal alternates on a 3-day cycle between PGE-08 and Pond No. 1.
1974	Single-lined evaporation Pond No. 2 through No. 4 are completed, and all TCS wastewater is conveyed directly to these ponds. PGE-08 is permanently taken out of service.
1974	Topock well No. 3 is installed.
1980	Topock well No. 1 is removed from service. Topock well No. 2a replaces Topock well No. 2. Permutit water conditioning unit No. 2a and No. 3 are used to supply water to the TCS.
1985	Chromium-based cooling water additives are replaced with phosphate-based additives for the open system, and a molybdate-based system is used for the closed-loop systems. Operation of the two-step chromium treatment unit ceases.

Year	Action
1989	Four new double-lined evaporation ponds are completed, and all TCS wastewater is directed to these ponds. The four single-lined evaporation ponds (i.e., the Old Evaporation Ponds) are removed from service.
1989 to 1990	The two-step chromium treatment unit is closed and removed. The original oily wastewater treatment system is removed and replaced with a new system.
1989 or 1990	Lower yard expansion is completed. The source of fill material may have been the former knoll west of the expanded area.
2001	The original coil shed Cooling Tower A is replaced with a new cooling tower and heat exchanger unit.
2002	The original coil shed Cooling Tower B is replaced with a new cooling tower and heat exchanger unit.
2003	Wastewater line to the evaporation ponds was replaced.
2003	Storage Building was constructed in the southwestern corner of the TCS.
2003	New septic tank and leach field were installed at the western edge of the TCS for temporary trailers.
2006	Several new cathodic protection anodes were installed.
2015	Compressor K-4 was removed from service due to foundation deterioration.
2011	Original Line 300A and Line 300B filter and separators were replaced.
2018	New air compressors were installed in the new building east of the Auxiliary Building.
2018	The old septic tank and leach field located near the employee parking lot that served the main TCS buildings were abandoned and replaced with a dry well and a new leach field.
2019 and 2021	Line 300A and Line 300B pig launchers were installed.
2021	AOC 28d drip leg was removed.

[a] The exact date for construction of the percolation pond is unknown, but based on aerial photographs, it appears to have been constructed in 1964 (that is, with the single-step treatment system).

TCS-4

TCS-4 was likely one of the exploratory borings installed in 1950 to evaluate the potential water supply for the TCS (PG&E 1950). Photos dated March 5, 1951, show installation of a "temporary water pump" in a well that appears to be TCS-4 (Photographs 4.1.1-3 and 4.1.1-4 at the end of this section).

RFI/RI Report Volume 1 presented information (Section 4.1.1.2) regarding a TCS employee who reported that he was personally responsible for welding a cap onto an approximately 12-inch-diameter vertical pipe located in Bat Cave Wash, assumed to be TCS-4. The cap was welded onto the pipe in the 1960s. The casing only extended a small amount above the ground, and the area where the pipe was located was later covered by an additional 18 to 24 inches of soil. Before welding the cap, the pipe had been covered with a wooden cover and gravel, and there were no materials of any kind visible in the pipe (Russell, pers. comm. 2006a).

During file reviews of historical TCS documents, a work order was found that contained handwritten notes showing "650 feet of steel pipe" extending from a "water treatment chamber" at the former sludge drying bed area to an "abandoned water well" in the bottom of the wash. The work order also indicated a completion date of November 1, 1964. Appendix G provides a copy of the work order.

Based on the new information, surface geophysical surveys, including a vertical magnetic gradient survey and a pseudo-terrain conductivity survey, were performed on April 2, 3, and 4, 2013, in the suspected area of the old well (TCS-4) in an attempt to locate the well and piping. Figure 4-1a shows the results of the geophysical surveys.

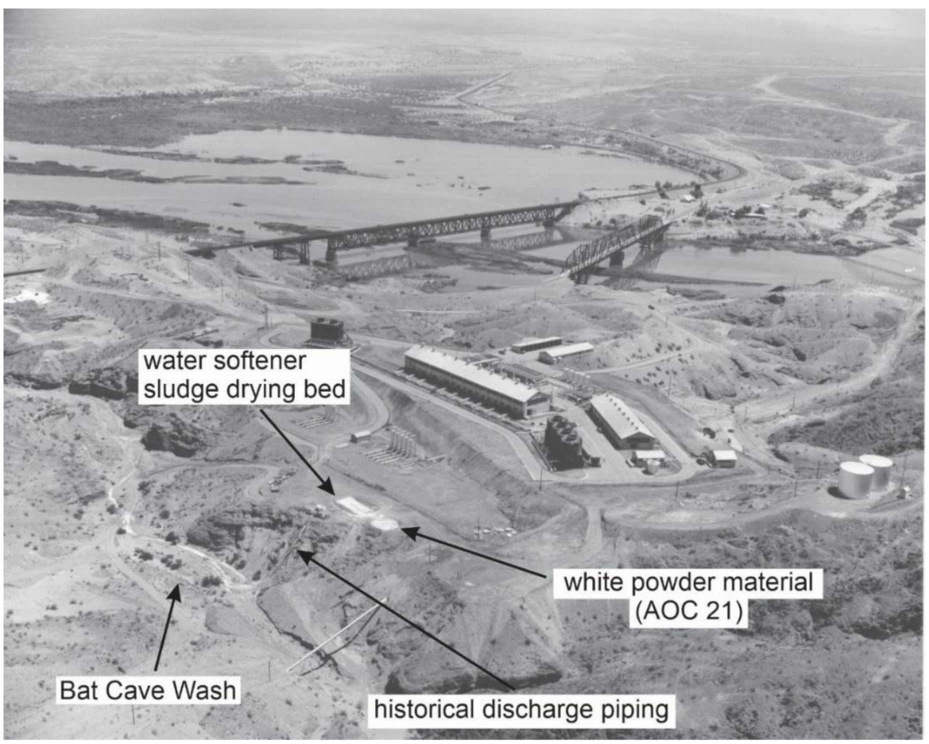
The vertical magnetic gradient survey identified a linear arrangement of weak anomalies (identified as a "possible pipeline or buried cable alignment"), extending down Bat Cave Wash and terminating at a feature identified as "suspected shallowly buried metal debris." The linear feature is inferred to be the TCS-4 pipeline. The location of the northern end of this linear feature is approximately 650 feet from the sludge drying bed, along the estimated route that the pipe was shown to take on the work order. It was inferred that this location corresponds to the location of TCS-4. The TCS-4 pipeline was not identified during the pseudo-terrain conductivity survey.

A pothole investigation was implemented in July 2013 to uncover TCS-4. The capped well was found at approximately 4 feet bgs (Photographs 4.1.1-5 and 4.1.1-6). A steel pipe leading into the well was also confirmed at approximately 7 feet bgs. This horizontal pipe was approximately 3 inches in diameter, was wrapped or covered with a tar-like material, and entered the side of the well through a welded intersection. An opportunistic sample of the tar-like material was collected during decommissioning of TCS-4; results are presented in Section 4.1.1.6, subsection Results of TCS-4 Opportunistic Samples.

A downhole video log was performed later that same year, and an obstruction in the well was encountered at approximately 59 feet bgs. The obstruction was determined to be unconsolidated fill material. The well casing was cleared of the fill material to a depth of approximately 158 feet bgs, where a hard bottom was encountered. Samples of the material were collected from inside the casing at 59 feet and 113 feet below the top of the casing.

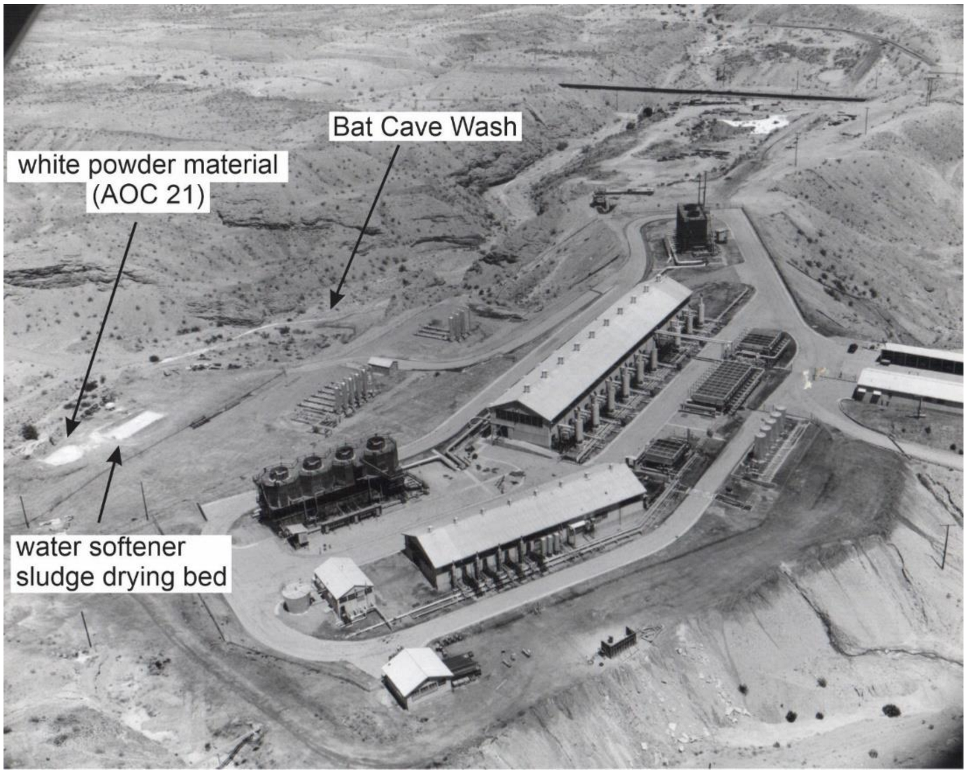
In April 2014, a second downhole video log was performed, and it was determined that the well had filled back in with unconsolidated material to a depth of approximate 127 feet bgs. The well was decommissioned in 2016, and the sampled material was removed.

The dates and duration TCS-4 was used for wastewater injection is not known. It appears about 4 feet of deposition has occurred since the well was capped.

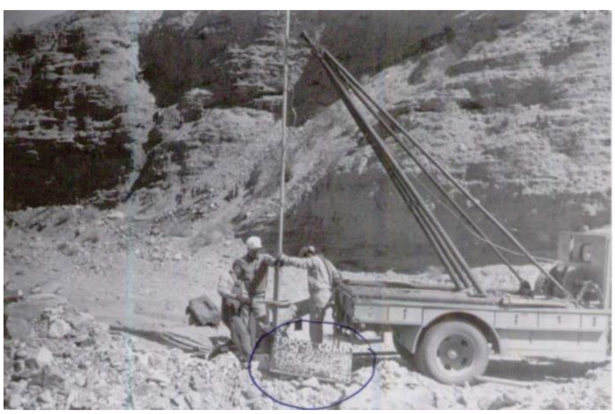


Photograph 4.1.1-1: May 19, 1955, Aerial Photograph 1, Bat Cave Wash.

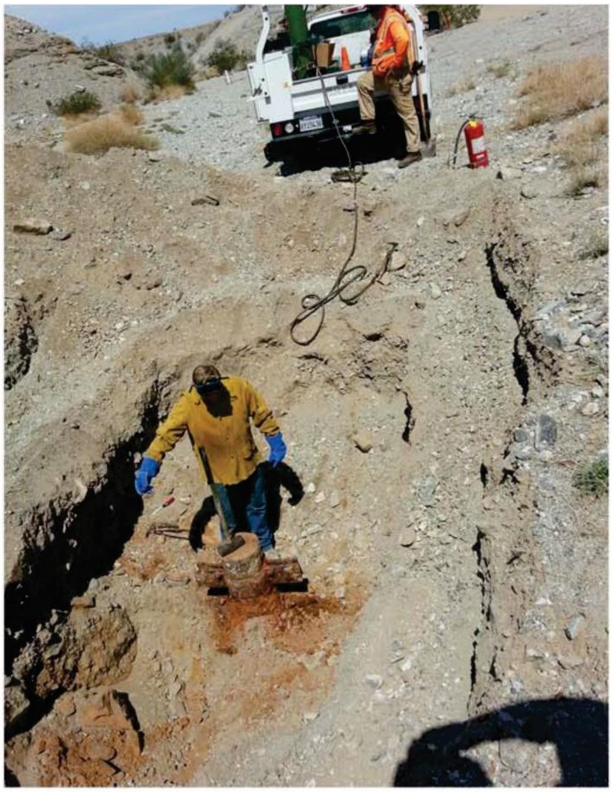
Note: Looking northeast. Historical discharge piping and water are visible in Bat Cave Wash on the bottom left of the photograph.



Photograph 4.1.1-2: May 19, 1955, Aerial Photograph 2, Lower Yard.
Note: Facing northwest. An apparent round impoundment area with white powder material is located in the lower yard of the TCS, south of the water softener sludge drying bed.



Photographs 4.1.1-3 and 4.1.1-4: March 5, 1951, Temporary Water Pump Installation
Note: A temporary water pump is being installed in a well believed to be TCS-4.




Photographs 4.1.1-5 and 4.1.1-6: September 2013 TCS-4 Excavation
Notes: Photo on the left was taken facing north. Photo on the right was taken facing south.

4.1.1.3 Field Observations

Field observations made during the RFI/RI investigation provided additional information about the investigation area historical use and potential sources of contamination:

- A broken pipe was observed protruding from the eastern slope of Bat Cave Wash in the approximate location of the northern historical discharge piping shown on Figures 4-1b and 4-1c. At the request of DTSC, PG&E sampled soil at the toe of the slope below the pipe in Bat Cave Wash (sample location SWMU1-25). Below the protruding pipe there were large pieces of concrete on the slope and at the toe of the slope. During a Site walk on April 24, 2012, PG&E and the agencies concluded that the large piece of green-stained concrete and pipe near the floor of Bat Cave Wash should be removed to allow soil sample collection beneath the concrete. The concrete was removed and treated as IDW before sample collection. The concrete was disposed of offsite in 2016 at the US Ecology facility in Beatty, Nevada, along with other IDW.
- White powdery material was observed along the eastern bank of Bat Cave Wash during the Phase 1 investigation. The material was located approximately 6 feet above the floor of the wash. However, this area of the wash has been eroding, and the floor of the wash was as much as 2 to 3 feet higher in the early 1990s. The white material is adjacent to the area that formerly contained the percolation bed and may have been at an elevation consistent with the percolation bed when the percolation bed was in use. Two possible sources of the white powder material are residual mineral salts from the percolation pond and water conditioning (lime treatment) sludge from the sludge drying beds. Samples were collected from multiple locations (WP-1 through WP-6) and depths by trenching and hand digging along the floor and side of the wash.

Periodic storm (high-runoff) events occur in Bat Cave Wash, making it difficult to assess the precise nature of erosion and deposition patterns. A 2006 storm event resulted in substantial erosion and deposition in portions of the wash in SWMU 1 and AOC 1 south, and a January 2010 storm event resulted in the movement of large gravel and cobbles from the upstream portion of Bat Cave Wash above the area near where the Debris Ravine (AOC 4) enters Bat Cave Wash to as far north as the L-300A pipeline overcrossing (in the vicinity of SSB-1). A Site reconnaissance of Bat Cave Wash was completed after the 2006 and 2010 storm events. Based on the Site reconnaissance conducted following the 2006 event, data from surface and near-surface soil sample locations collected before the 2006 storm event may no longer be representative of Site conditions. However, deeper soil samples (below 2 feet to 3 feet bgs) did not appear to be affected by the 2006 storm event, are still considered reliable, and were used in the data gaps evaluation.

While there was considerable movement of rock south of SWMU 1 during the 2010 storm event, there appeared to be limited scouring in the wash and erosion of the wash walls within SWMU 1 and AOC 1 south. Although there was damage to well MW-38 (installed within Bat Cave Wash), most of the 2008 sample location survey markers (1/8-inch lathe stakes) were still in place following the 2010 runoff event. MW-38 is also located immediately downstream of a sizable feeder wash on the western side of Bat Cave Wash. Based on the visual reconnaissance of Bat Cave Wash following the 2010 storm event, most of the soil samples collected during the 2008 Phase 1 investigation were still considered to be representative. Surficial samples collected from locations within areas of highest energy during the 2010 event may not be representative of current conditions. This exemplifies that Bat Cave Wash is and will continue to be an active wash with periodic transport of noticeable quantities of rocks and soil along the floor of the wash including some of its tributaries.

4.1.1.4 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. General lithologic descriptions for AOC 1 and SWMU 1 are provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 1 south and SWMU 1 is dominated by a relatively homogeneous unit of silty gravel with sand, containing approximately 40% gravel and cobbles and 40% sand, and 20% silt, with some variation in the relative abundance of gravel, sand, and silt throughout the investigation area. In the area around TCS-4, well-graded gravel with sand was observed, with approximately 60 to 70% gravel and cobbles, and 30 to 40% fine to coarse sand. In the northern portion of AOC 1 south, sand and silt content generally increases with depth. A sandy silt layer, comprising approximately 10% gravel, 25% sand, and 65% silt, was observed at the bottom of boring AOC1-T2d; the thickness and lateral extent of the unit are unknown. The northern portion of AOC 1 south contains surface layer of poorly graded gravel with sand, ranging from 2 to more than 10 feet in thickness, with approximately 60% gravel, 30 to 35% sand, and 5 to 10% silt.

AOC 1 north is dominated by well-graded sand with gravel, with approximately 50 to 60% fine to coarse sand, 30 to 40% fine to coarse gravel, and up to 20% cobbles and boulders. In the northern portion of AOC 1 north, a lean silt unit ranging from approximately 2 to 7.5 feet in thickness overlays the well-graded sand with gravel unit. Figures 4-1e through 4-1k are cross sections showing lithology for AOC 1 and SWMU 1.

Descriptions of staining and debris observed in samples collected at AOC 1 and SWMU 1, and associated contamination, are as follows:

- At boring location AOC1-T2g, a strong red staining was observed in soil at 10 feet bgs. In the sample collected from 9 feet to 10 feet bgs at AOC1-T2g, the following analytes were detected at concentrations greater than the ISL:
  - Antimony
  - CrVI
  - CrT
  - Mercury
  - Molybdenum

- Zinc
- Dioxins furans TEQ mammal
- Dioxins furans TEQ human
- Dioxins furans TEQ avian

- At boring AOC1-T2h, green staining was observed in soil between 20 feet and 30 feet bgs; no analytes were detected exceeding ISLs from 20 feet to 30 feet bgs at AOC1-T2h.
- At boring location AOC1-T6d, located at the northern extent of AOC 1 south, rusty, metallic debris was observed in the soil from approximately 0 to 3 feet bgs. Thallium, zinc, and dioxins and furans TEQ mammal were detected exceeding their respective ISL between 0 and 0.5 foot bgs at AOC1-T6d.
- Yellowish-green and red staining was observed in soil at boring locations TCS4-E, TCS4-N, and TCS4-S between approximately 5 feet and 6 feet bgs. Many metals and dioxins and furans TEQ exceed ISLs at these borings from 5 feet to 6 feet bgs. However, the exceeding analytes and concentrations vary at each boring; therefore, it is unclear whether there is an association between the contamination and staining at these locations.
- At boring location SWMU1-25, located along the eastern boundary of SWMU 1, green staining was observed from approximately 0 foot to 4 feet bgs. The following analytes exceed their respective ISLs between 0 and 3 feet bgs at SWMU1-25:
  - Antimony
  - Arsenic
  - CrVI
  - CrT
  - Molybdenum
  - Zinc
  - Dioxins and furans TEQ mammal
  - Dioxins and furans TEQ avian
  - Dioxins and furans TEQ human
- Layers of green staining, white powder material, and debris were observed in trenches along the eastern boundary of SWMU 1. The layers were observed between approximately 0 foot and 8 feet bgs and varied in thickness from less than 1 foot to approximately 6 feet. The layers of white powder material, staining, and debris are shown on trench logs presented in Appendix B, Attachment B2.

4.1.1.5 SWMU 1 Analytical Results

Appendix B summarizes the general field and sample collection methods. Tables 3-1a through 3-1i provide analytical results for SWMU 1, and Figures 3-3a through 3-3u show the sampling locations and results.

This section provides a discussion of the screening level exceedances. Section 4.1.1.7 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Samples were collected from 60 locations at depths ranging from 0 foot to 90 feet bgs. At locations across SWMU 1, the ISLs were exceeded for one or more metals, including:

- Antimony (ECV)
- Arsenic (BK)
- Barium (BK)
- CrVI (BK)

- CrT (BK)
- Cobalt (ECV)
- Copper (ECV)
- Lead (BK)
- Molybdenum (ECV)
- Nickel (BK)
- Selenium (BK)
- Vanadium (BK)
- Zinc (BK)

The greatest concentrations were typically found between depths of 0 feet and 15 feet bgs, as shown in Table 3-1a and on Figures 3-3a through 3-3o. The analytes most frequently detected greater than the ISLs were as follows:

- CrVI was detected exceeding its ISL (0.83 mg/kg) in 50 samples taken from depths between 0 foot and 15 feet bgs (Table 3-1a). The greatest CrVI concentration of 47.5 mg/kg was detected at sample location WP-1 at the surface. Sample location WP-1 was collected at the toe of the slope, in an area of white powder above the former percolation bed (Figure 3-3e).
- CrT was detected exceeding its ISL (39.8 mg/kg) in 91 samples taken from depths between 0 foot and 40 feet bgs (Table 3-1a). The greatest CrT concentration of 3,200 mg/kg was detected at sample location SWMU1-1 at 5 feet to 6 feet bgs. Sample SWMU1-1 is located at the northern end of the former percolation bed (Figure 3-3f). Several samples collected within SWMU 1 have the greatest CrT concentrations at 5 feet to 6 feet bgs, including SWMU1-1, SWMU1-3, and SWMU1-8. This may be the result of deposition of up to 5 feet of soil not impacted by chromium (for example, deposited after 1969, when the two-step wastewater treatment process for chromium began) within the SWMU 1 area, and the 5-foot to 6-foot samples represent the former surface of Bat Cave Wash when the percolation beds were in operation. The large difference in soil concentrations of CrT and CrVI are explained by the presence of CrIII, primarily from the one-step treatment process between 1964 and 1969, as described in Section 4.1.1.7. The presence of greater concentrations of other metals above 5 feet to 6 feet bgs discussed in the following bullets (for example, for cobalt, copper, and zinc) may indicate a different source of these metals in shallower soils, such as (for example) runoff of wear metals from the TCS, nearby highway, and railroad, as is discussed in the CSM in Section 4.1.1.7.
- Cobalt was detected exceeding its ISL (12.7 mg/kg) in 21 samples taken from depths between 0 foot and 69 feet bgs (Table 3-1a). The greatest cobalt concentration of 19 mg/kg was detected at sample location SWMU1-WP-6h at 2 feet to 3 feet bgs. Sample location SWMU1-WP-6h was collected at the toe of the slope, in an area of white powder above the former percolation bed (Figure 3-3g).
- Copper was detected exceeding its ISL (16.8 mg/kg) in 56 samples taken from depths between 0 foot and 79 feet bgs (Table 3-1a). The greatest copper concentration of 61 mg/kg was detected at sample location SWMU1-WP-6h at 2 feet to 3 feet bgs. Sample location SWMU1-WP-6h was collected at the toe of the slope, in an area of white powder above the former percolation bed (Figure 3-3h).
- Mercury was detected exceeding its ISL (0.0125 mg/kg) in 13 samples taken from depths between 0 foot and 79 feet bgs (Table 3-1a). The greatest mercury concentration of 0.35 mg/kg was detected at sample location SWMU1-18 at 14 feet to 15 feet bgs. Sample location SWMU1-18 was collected in the southern portion of the former percolation bed (Figure 3-3j).
- Molybdenum was detected exceeding its ISL (1.37 mg/kg) in 23 samples taken from depths between 0 foot and 59 feet bgs (Table 3-1a). The greatest molybdenum concentration of 20 mg/kg was detected at sample location SWMU1-25 at 0 foot to 1 foot bgs. Sample location SWMU1-25 was collected adjacent to the former wastewater transference pipeline to TCS-4 (Table 3-3k).
- Nickel was detected exceeding its ISL (27.3 mg/kg) in 24 samples taken from depths between 0 foot and 59 feet bgs (3-1a). The greatest nickel concentration of 51 mg/kg was detected at sample location SWMU1-WP-9 at 11 feet to 12 feet bgs. Sample location SWMU1-WP-9 was collected along the western edge of the former percolation bed (3-3l).

- Vanadium was detected exceeding its ISL (52.2 mg/kg) in 10 samples taken from depths between 0 foot and 49 feet bgs (3-1a). The greatest vanadium concentration of 57 mg/kg was detected at sample location SWMU1-15 at 49 feet to 50 feet bgs. Sample location SWMU1-15 was collected in the southern portion of the former percolation bed (Figure 3-3n).
- Zinc was detected exceeding its ISL (58 mg/kg) in 51 samples taken from depths between 0 foot and 79 feet bgs (Table 3-1a). The greatest zinc concentration of 673 mg/kg was detected at sample location T-3-B at 0 feet bgs. Sample location T-3-B was collected at the toe of the slope, in an area of white powder above the former percolation bed (Figure 3-3o).

The lateral extent of the exceedances has been defined by samples with results less than ISLs, not detected greater than reporting limits, or confined by topographic features (for example, topography surrounding the wash confined wastewater and surface water flows to the bed of the wash). The vertical extent of the exceedances is defined by samples with results less than ISLs or not detected greater than reporting limits, or by collocated borings or nearby samples, except at the samples discussed in the bullet list that follows. Surface samples (0 foot to 1 foot bgs) with exceedances were not considered vertical extent data gaps.

The deepest samples at the following locations had results that slightly exceeded their respective ISL and were not defined by nearby or collocated samples, with FOEs up to 3.2 times the ISL:

- SWMU1-6 (zinc): The concentration in the deepest sample is significantly less than the RBC for zinc and does not pose an unacceptable risk to receptors. Zinc concentrations increase slightly with depth; however, no other metals exceed the ISL at this location; therefore, this is not considered to be a data gap that requires further investigation.
- SWMU1-17 (cobalt, copper): The concentrations in the deepest sample do not exceed the RBCs for cobalt or copper and do not pose an unacceptable risk to receptors; therefore, this is not considered to be a data gap that requires further investigation.
- SWMU1-WP-6a (CrT, cobalt, nickel, vanadium): The deepest sample at SWMU-WP-6a is from 13 feet to 14 feet bgs and is not available to receptors; therefore, this is not considered to be a data gap that requires further investigation.
- SWMU1-WP-T3a (copper): The deepest sample at SWMU-WP-T3a is from 13 feet to 14 feet bgs and is not available to receptors; this is not considered to be a data gap that requires further investigation.
- SSB-5 (zinc): Concentrations decrease from 6 feet to 10 feet bgs, and the concentration in the deepest sample (107 mg/kg) is less than the RBC and does not pose an unacceptable risk to receptors. Zinc at SSB-5 is not considered to be a data gap that requires further investigation.
- SWMU1-WP-3a (copper): The concentration in the deepest sample does not exceed the RBC for copper and does not pose an unacceptable risk to receptors. Concentrations increase slightly with depth; however, no other metals exceed the ISL at this location; therefore, this is not considered to be a data gap that requires further investigation. This location is included in the NTCRA.
- SWMU1-14 (CrT, cobalt, copper, nickel): Concentrations in the deepest sample do not exceed RBCs. The 9-foot- to 10-foot-bgs sample is not available to ecological receptors; therefore, the human health RBC for recreators is used for comparison. However, as concentrations increase with depth, this location is recommended to be considered for inclusion in the CMS/FS.
- MW-09 (zinc): The exceedance at MW-09 occurred at 87 feet bgs and is not available to receptors; therefore, this is not considered to be a data gap that requires further investigation.
- SWMU1-29 (cadmium, CrVI, CrT, zinc): Concentrations of cadmium, CrVI, and CrT decrease with depth, are less than the RBRG (CrVI) or RBC (cadmium and CrT), do not pose an unacceptable risk to receptors, and are not considered to be data gaps that require further investigation. The concentration of zinc in the deepest sample is also less than the RBC, but concentrations increase with depth. No other metals exceed the ISL at this location; therefore, this is not considered to be a data gap that requires further investigation.

- SWMU1-WP-10 (CrVI, CrT, and zinc): The concentration of CrVI decreases with depth and is less than the RBRG in the deepest sample; CrVI at SWMU1-WP-10 is not considered a data gap that requires further investigation. Concentrations of CrT and zinc increase from the 5-foot- to 6-foot-bgs samples to the 9-foot- to 10-foot-bgs sample. This location is recommended to be considered for inclusion in the CMS/FS. This location is included in the NTCRA.
- WP-5 (CrT): Concentrations decrease from 1 foot to 4 feet bgs, and the concentration in the deepest sample (113 mg/kg) is less than the RBC and does not pose an unacceptable risk to receptors. CrT at WP-5 is not considered to be a data gap that requires further investigation.
- SSB-4 (CrT, zinc): The concentration in the deepest sample exceeds the RBC for CrT and does not exceed the RBC for zinc. This location is recommended to be considered for inclusion in the CMS/FS. This location is included in the NTCRA.

The deepest sample at SWMU1-19 had mercury results that exceeded the ISL at a FOE of 21.6 times the ISL. However, the ISL for mercury is low (0.0125 mg/kg) and well less than the ecological RBC (1 mg/kg) and human health recreator RBC (270 mg/kg). No BK value has been established, and collecting deeper samples at this location would require significant disturbance for a relatively low result (0.27 mg/kg). Additionally, the samples with ISL exceedances were collected from 59 feet to 80 feet bgs, are not available to receptors, and do not pose a risk. Mercury concentrations at SWMU1-19 are not considered to be a data gap that requires further investigation.

CLP Inorganics: Samples were collected from 31 locations at depths ranging from 0 foot to 87 feet bgs. The ISLs for calcium (BK), magnesium (BK), manganese (BK), and potassium (BK) were exceeded at one or more of the following locations (Table 3-1b):

- MW-9
- SWMU1-17
- SWMU1-WP-7
- WP-BANK 1
- WP-BANK 2
- WP-Floor
- P-2Soil

The analytes most frequently detected exceeding the ISLs were calcium and magnesium:

- Calcium was detected exceeding its ISL (66,500 mg/kg) in 5 samples taken from depths between 0 foot to 3.5 feet bgs (Table 3-1b). The greatest calcium concentration of 344,000 mg/kg was detected at sample location WP-Floor at an unknown depth. Sample location WP-Floor was collected from the floor of Bat Cave Wash, in the former percolation bed, and in an area of white powder, indicating the white powder at this location is likely lime treatment sludge.
- Magnesium was detected exceeding its ISL (12,100 mg/kg) in 3 samples taken from depths between 0 foot and 3.5 feet bgs (Table 3-1b). The greatest magnesium concentration of 15,500 mg/kg was detected at sample location WP-Floor at an unknown depth. Sample location WP-Floor was collected from the floor of Bat Cave Wash, in the former percolation bed, and in an area of white powder.

The vertical extent of the exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits. The deepest sample at location MW-09 had results for manganese that slightly exceeded the ISL, with a FOE of 1.3 times the ISL. This minor exceedance is not considered a data gap that requires further investigation because CLP inorganics are not compounds driving risk. Surface soil samples (0 foot to 1 foot bgs) with exceedances for CLP inorganics were not considered a data gap.

PAHs: Samples were collected from 31 locations, and none had detected results exceeding their respective ISLs (110 to 18,000,000 µg/kg) (Table 3-1c).

TPH: Samples were collected from 29 locations, and none had detected results exceeding their respective ISLs (Table 3-1d):

- TPH-d: 230 mg/kg
- TPH as motor oil (TPH-mo): 11,000 mg/kg

General Chemistry: Samples were collected from 50 locations (Table 3-1e). ISLs were not established for general chemistry parameters.

Pesticides: Samples were collected from 19 locations, and none had detected results exceeding their respective ISLs (2.1 to 470,000 µg/kg) (Table 3-1f).

PCBs: Samples were collected from 24 locations, and none had detected results that exceeded their respective ISLs (170 to 4,100 µg/kg) (Table 3-1g and Figures 3-2r, 3-2q, 3-3q, and 3-3r).

Dioxins and Furans: Samples were collected from 12 locations at depths ranging from 0 foot to 20 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ avian (ECV), TEQ human (RRSL), and TEQ mammal (ECV) were exceeded at one or more of the following locations: SWMU1-18 through SWMU1-27 and SWMU1-29, as shown in Table 3-1h:

- TEQ avian samples were detected exceeding the ISL (16 ng/kg) at 15 locations between depths 0 foot and 15 feet bgs (Table 3-1h). The greatest TEQ avian concentration of 11,000 ng/kg was detected at sample location SWMU1-25 at the surface to 1 foot bgs, adjacent to a former wastewater transference pipeline (Figure 3-3s).
- TEQ human samples were detected exceeding the ISL (50 ng/kg) at 12 locations between depths 0 foot and 15 feet bgs (Table 3-1h). The 15-foot sample was at location AOC1-T5D, located just south of the I-40 culvert, and may represent mixing or deposition at this location. The greatest TEQ human concentration of 12,000 ng/kg was detected at sample location SWMU1-25 at the surface to 1 foot bgs adjacent to a former wastewater transference pipeline (Figure 3-3t).
- TEQ mammal samples were detected exceeding the ISL (5.58 ng/kg) at 25 locations between depths of 0 foot and 15 feet bgs (Table 3-1h). The greatest TEQ mammal concentration of 12,000 ng/kg was detected at sample location SWMU1-25 at the surface to 1 foot bgs, adjacent to a former wastewater transference pipeline (Figure 3-3u).

The lateral and vertical extents of exceedances of TEQ avian and human are defined by samples with results less than ISLs, not detected greater than reporting limits, or confined by topographical features.

The lateral and vertical extents of where TEQ mammal exceeds the mammal ISL have not been defined by samples, as shown on Figures 3-3s through 3-3u. These exceedances of the mammal ISL are not considered a data gap requiring further investigation because, as agreed upon during the investigation process, the avian and human ISLs were used to define nature and extent for dioxin and furans because the TEQ mammal ISL of 5.58 ng/kg, based on BK, is conservative and extremely low. Using the lesser TEQ mammal ISL value to define extent would also have resulted in many additional sample locations and intrusions. Further investigation to assess the vertical extent of TEQ mammal was not proposed to minimize impacts to cultural resources.

4.1.1.6 AOC 1 Analytical Results

Tables 3-3a through 3-13l provide the analytical results for AOC 1, and Figures 3-2a through 3-2u (AOC 1 north) and Figures 3-3a through 3-3u (AOC 1 south)show the sampling locations and results.

This section provides a discussion of the screening level exceedances. Section 4.1.1.7 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources

- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Sediment samples were collected from 20 locations at depths ranging from 0 foot to 3 feet bgs. The ISLs for arsenic (TEC), CrVI (BK), and CrT (TEC) were exceeded at AOC1-BCW6. This location is an area where soil is transitioning into sediment at the mouth of Bat Cave Wash. The analytes exceeded their ISLs in a sediment sample collected at AOC 1-BCW6 from 0 to 0.5 foot bgs (Figures 3-2b, 3-2e, and 3-2f). Sample results are as follows (Table 3-2a):

- Arsenic: ISL is 9.79 mg/kg, and sample result was 13 mg/kg.
- CrVI: ISL is 0.83 mg/kg, and sample result was 2.63 mg/kg
- CrT: ISL is 43.4 mg/kg, and sample result was 71 mg/kg

The lateral and vertical extents of exceedances have been defined by samples with results less than ISLs or not detected greater than reporting limits.

Soil samples were collected from up to 112 locations at depths ranging from 0 foot to 80 feet bgs. Soil samples were also collected from the unconsolidated fill material within the former well, TCS-4, at 59 feet and 113 feet bgs. This material within the well likely fell into the well from the surface, so should not be used to assess vertical impacts.

As shown in Table 3-2b and on Figures 3-2a through 3-2o and 3-3a through 3-3o, the ISLs were exceeded at 25 locations for one or more of the following metals:

- Antimony (ECV)
- Arsenic (BK)
- Barium (BK)
- Calcium (BK)
- CrVI (BK)
- CrT (BK)
- Cobalt (BK)
- Copper (BK)
- Lead (BK)
- Mercury (ECV)
- Molybdenum (BK)
- Nickel (BK)
- Selenium (BK)
- Thallium (RRSL)
- Vanadium (BK)
- Zinc (BK)

The most frequently detected metal analytes in soil at concentrations exceeding the ISLs were:

- CrVI
- CrT
- Copper
- Lead
- Mercury
- Molybdenum
- Zinc

Exceedances are mostly clustered in the vicinity of TCS-4 (former water supply and wastewater injection well), near the I-40 culvert, and at the mouth of Bat Cave Wash and are summarized as follows:

- CrVI was detected exceeding its ISL (0.83 mg/kg) in 38 locations from depths between 0 foot and 60 feet bgs (Table 3-2b). The greatest CrVI concentration of 80 mg/kg was detected at sample location Old Well-BCW-1 at 7 feet to 8 feet bgs. Sample location Old Well-BCW-1 was collected from the floor of Bat Cave Wash near the TCS-4 well (Figure 3-3e).

- CrT was detected exceeding its ISL (39.8 mg/kg) in 60 samples taken from depths between 0 foot and 10 feet bgs (Table 3-2b). The greatest CrT concentration of 4,400 mg/kg was detected at sample location Old Well-BCW-2 at 4 feet to 5 feet bgs. Sample location Old Well-BCW-2 was collected in the floor of Bat Cave Wash near the TCS-4 well (Figure 3-3f).
- Copper was detected exceeding its ISL (16.8 mg/kg) in 45 samples taken from depths between 0 foot and 60 feet bgs (Table 3-2b). The greatest copper concentration of 64 mg/kg was detected at sample location SD-14 at 5 feet to 6 feet bgs. Copper was also detected at 580 mg/kg in the sample collected from soil within TCS-4 at 113 feet bgs. This result is not representative of surrounding soil. Sample location TCS-4 was collected from the floor of Bat Cave Wash near the Old Well-BCW1 and Old Well-BCW2 (Figure 3-3h).
- Lead was detected exceeding its ISL (8.39 mg/kg) in 60 samples taken from depths between 0 foot and 6 feet bgs (Table 3-2b). The greatest lead concentration of 120 mg/kg was detected at sample location SD-14 at 5 feet to 6 feet bgs. Sample location SD-14 was collected from the floor of Bat Cave Wash near the outfall of Storm Drain Line 10 (Figure 3-3i), which captures drainage from the lower yard and slopes leading up to the northern cooling tower.
- Mercury was detected exceeding its ISL (0.0125 mg/kg) in 21 samples taken from depths between 0 foot and 70 feet bgs (Table 3-2b). The greatest mercury concentration of 0.26 mg/kg was detected at sample location AOC1-T2g at 9 feet to 10 feet bgs. Sample location AOC1-T2g was collected in Bat Cave Wash near the TCS-4 well (Figure 3-3j).
- Molybdenum was detected exceeding its ISL (1.37 mg/kg) in 35 samples taken from depths between 0 foot and 6 feet bgs (Table 3-2b). The greatest molybdenum concentration of 15 mg/kg was detected at sample location TCS4-N at 5 feet to 6 feet bgs, collected from the area around well TCS-4. Molybdenum was also detected at 35 mg/kg in the sample collected from soil within TCS-4 at 113 feet bgs. This result is not representative of surrounding soil (Figure 3-3k).
- Zinc was detected exceeding its ISL (58 mg/kg) in 56 samples taken from depths between 0 foot and 15 feet bgs (Table 3-2b). The greatest zinc concentration of 660 mg/kg was detected at sample location SD-14 at 5 feet to 6 feet bgs. Sample location SD-14 was collected from the floor of Bat Cave Wash near the outfall of Storm Drain Line 10 (Figure 3-3o), which captures drainage from the lower yard and slopes leading up to the northern cooling tower.

The lateral extent of exceedances has been defined by samples with results less than ISLs, and not detected greater than reporting limit or confined by topographical features. The vertical extent of exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits, or by nearby or collocated samples, except at the locations discussed.

The deepest samples at the following locations had results that exceeded their respective ISLs and were not defined by nearby or collocated samples, with FOEs ranging from 2.3 to 12.8 times the ISL:

- AOC16-5 (copper): The concentration in the deepest sample is less than the Ecological RBC for copper (109 mg/kg) and does not pose an unacceptable risk to receptors. Copper concentrations increase slightly with depth; however, no other metals exceed the ISL at this location, so this is not considered to be a data gap that requires further investigation.
- SD-17 (lead and zinc): The concentrations in the deepest samples slightly exceed the ISLs, do not exceed RBCs for lead and zinc, and do not pose an unacceptable risk to receptors. The lead and zinc concentrations at this location are not considered a data gap that requires further investigation.
- AOC1-T6D (thallium): The thallium concentration does not increase from the surface to 20 feet bgs, does not exceed the RBC, and does not pose an unacceptable risk to receptors. Additionally, collecting additional deeper samples at this location would require a significant disturbance for the relatively small exceedance (2.2 mg/kg). Therefore, thallium at AOC1-T6D is not considered a data gap that requires further investigation.

- TCS-4 (CrVI, lead): The exceedances at TCS-4 were detected at a depth of 113 feet bgs within the well and are not representative of the surrounding soil; therefore, they are not considered a data gap.
- AOC1-4 (barium): The exceedance at AOC1-4 occurred at 39 feet to 30 feet bgs and is not available to receptors; therefore, it not considered to be a data gap that requires further investigation.
- XMW-9 (barium, copper, and molybdenum): The exceedances at XMW-9 occurred at 70 feet bgs and are not available to receptors, so are not considered to be data gaps that require further investigation.
- AOC1-T2f (molybdenum): The concentration in the deepest sample does not exceed the RBC for molybdenum and does not pose an unacceptable risk to receptors. This minor ISL exceedance at 2 feet bgs on the slope below the northwestern corner of the TCS is not considered a data gap that requires further investigation.
- AOC1-T2g, SD-19, and AOC1-T1e (mercury): Mercury exceedances may be considered a data gap; however, the ISL for mercury is low (0.0125 mg/kg), no BK value has been established, and collecting additional samples would require significant disturbance for relatively small exceedances (maximum concentration of 0.16 mg/kg). Additionally, the maximum concentration (0.16 mg/kg) is less than the RBC of 1 mg/kg, indicating that mercury concentrations do not pose an unacceptable risk to receptors. Mercury concentrations at AOC 1 are not considered to be a data gap that requires further investigation.

Two additional samples were collected from AOC 1 during groundwater remedy construction (AOC1-GRBS-MW-10D and AOC1-GRBS-MW-11D) (Appendix F, Table F-1a). There was an exceedance of the thallium ISL at AOC1-GRBS-MW-10D from 0 foot to 1 foot bgs. This exceedance does not impact the lateral definition of metals at AOC 1.

CLP Inorganics: Samples were collected from up to 28 locations at depths ranging from 0 foot to 82 feet bgs. The ISLs for calcium (BK), manganese (BK), and sodium (BK) were exceeded at one or more of the following locations (Table 3-2c):

- AOC1-BCW6
- SD-14
- SD-16

AOC1-BCW6 is a location where soil is transitioning to sediment. CLP contamination is likely associated with lime softener and sludge treatment materials. Manganese was the most frequently detected CLP inorganic.

Manganese was detected exceeding its BK value or ISL (402 mg/kg) in 2 samples taken from depths between 0 foot and 3 feet bgs (Table 3-2c). The greatest manganese concentration of 720 mg/kg was detected at sample location SD-16 at 2 feet to 3 feet bgs. Sample location SD-16 was collected in Bat Cave Wash near the outfall of Storm Drain Line 12.

The lateral extents of the exceedances have been defined by samples with results less than ISLs or not detected greater than reporting limits. The vertical extents of the exceedances have been defined by samples with results less than ISLs.

Two additional samples were collected from AOC 1 during groundwater remedy construction (AOC1-GRBS-MW-10D and AOC1-GRBS-MW-11D) (Appendix F, Table F-1b). There were no exceedances of ISLs.

PAHs: Samples were collected from 70 locations at depths ranging from 0 foot to 79 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. PAHs were not detected or were detected less than their respective ISL in all but 5 samples collected in AOC 1.

The ISLs for B(a)P equivalent (RRSL) and HMW PAHs (ECV) were exceeded at one or more of the following locations (Table 3-39c and Figures 3-2p and 3-3p):

- AOC1-T4c
- PA-03
- PA-15
- SD-14

These locations are near AOC-27, the Perimeter Area, and a storm drain on the western side of the TCS. PAHs are ubiquitous in the environment and have been detected at lesser concentrations in most RFI/RI soil investigation units. Potential sources of PAHs in the vicinity of the TCS may include historical industrial activities, such as fire training exercises and burning of garbage, and exhaust from cars and trucks. Exceedances are summarized as follows:

- B(a)P equivalent exceeded the ISL (110 μg/kg) in 5 samples taken from depths between 0 foot and 5 feet bgs (Table 3-2d). The greatest B(a)P equivalent concentration of 490 μg/kg was detected at sample location PA-15 at the surface to 1 foot bgs. Sample location PA-15 is located along the TCS fence line at the top of the slope, above the access road from the TCS to the floor of Bat Cave Wash (Figure 3-3p).
- HMW PAHs exceeded the ISL (1,160 μg/kg) in 3 samples taken from depths between 0 foot and 5 feet bgs (Table 3-2d). The greatest HMW PAH concentration of 2,856 μg/kg was detected at sample location AOC1-T4c at 5 feet to 6 feet bgs. Sample location AOC1-T4c is on the floor of Bat Cave Wash near the access road from AOC 27 – MW24 Bench.

The lateral and vertical extents of the exceedances have been defined by nearby samples with results less than ISLs or not detected greater than reporting limits.

Two additional samples were collected from AOC 1 during groundwater remedy construction (AOC1-GRBS-MW-10D and AOC1-GRBS-MW-11D) (Appendix F, Table F-1c). There were no exceedances of ISLs.

VOCs: Samples were collected from 16 locations at depths ranging from 2 feet to 3 feet bgs (Table 3-2e). The only VOC detected was methyl acetate at 2 locations. Both detections were 6 orders of magnitude less than the ISL (California Human Health Screening Level [CHHSL]). The analytical results for AOC 1 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time.

SVOCs: Samples were collected from 39 locations at depths ranging from 0 foot to 79 feet bgs (Table 3-2e). The only SVOCs detected was bis (2-ethylhexyl) phthalate. No samples had detected results that exceeded the ISL (ECV).

TPH: Samples were collected from 43 locations at depths ranging from 0 foot to 9 feet bgs. The ISL for TPH-d (CHHSL) was exceeded at 1 location: SD-14.

TPH-d was detected at a concentration of 300 mg/kg at 5 feet to 6 feet bgs at sample location SD-14. This concentration is greater than the TPH-d ISL (58 mg/kg). Sample location SD-14 was collected from the floor of Bat Cave Wash near the outfall of Storm Drain Line 10.

The lateral and vertical extents of the exceedance have been defined by nearby samples where TPH was not detected greater than reporting limits.

General Chemistry: Samples were collected from 46 locations at depths ranging from 0 foot to 82 feet bgs (Table 3-2g). ISLs were not established for general chemistry parameters. Two additional samples were collected from AOC 1 during groundwater remedy construction (AOC1-GRBS-MW-10D and AOC1-GRBS-MW-11D) (Appendix F, Table F-1e).

Pesticides: Samples were collected from 31 locations at depths ranging from 0 foot to 69 feet bgs (Table 3-2h). No samples had detected results that exceeded their respective ISLs (ECVs, RRSLs, CHHSLs).

PCBs: Samples were collected from 64 locations at depths ranging from 0 foot to 69 feet bgs (Table 3-2i). PCBs were evaluated as individual Aroclors and as total PCBs. They were not detected or were detected less than their respective ISL in 53 samples collected in AOC 1. The ISLs for Aroclor 1254 (RRSL), Aroclor 1260 (RRSL), and total PCBs (ECV) were exceeded at one or more of the following 11 locations (Table 3-2i and Figures 3-2q through 3-2r and 3-3q through 3-3r):

- AOC16-5
- AO1-BCW10
- AOC1-T5D
- AOC4-GB10
- AOC4-GB11
- AOC4-GB12
- PA-01
- PA-16
- SD-14
- SD-25
- SD-26

These locations are on the western slope of the TCS, at the gabions at the end of AOC 4 Debris Ravine, at the I-40 culvert, and one location at the mouth of Bat Cave Wash, indicating the source of PCBs is likely from the TCS. PCBs were detected at elevated concentrations at several locations on the TCS, including around the northern cooling tower (AOC 6), in low-laying areas around the station, including AOC 10, AOC 11, AOC 4, and near the storm drain outfalls (SDs). Aroclor 1254 and 1260 are predominantly found in electrical transformers.

Exceedances are summarized as follows:

- Aroclor 1254 was detected exceeding the ISL (240 µg/kg) in 10 samples taken from depths between 0 feet and 2 feet bgs (Table 3-2i). The greatest Aroclor 1254 concentration of 1,000 µg/kg was detected at sample location SD-14 at the surface to 1 foot bgs. Sample location SD-14 was collected near the floor of Bat Cave Wash by the outfall of Storm Drain Line 10 (Figure 3-3q), which captures drainage from the lower yard and slopes leading up to the northern cooling tower (AOC 6).
- Aroclor 1260 was detected exceeding the ISL (240 µg/kg) in 1 sample at the surface and 1 foot bgs (Table 3-2i). The Aroclor 1260 concentration of 320 µg/kg was detected at sample location SD-14 at the surface to 1 foot bgs. Sample location SD-14 was collected from the floor of Bat Cave Wash near the outfall of Storm Drain Line 10, which captures drainage from the lower yard and slopes leading up to the northern cooling tower.
- Total PCBs were detected exceeding the ISL (204 µg/kg) in 11 samples taken from depths between 0 foot and 2 feet bgs (Table 3-2i). The greatest total PCBs concentration of 1,337 µg/kg was detected at sample location SD-14 at the surface to 1 foot bgs. Sample location SD-14 was collected from the floor of Bat Cave Wash near the outfall of Storm Drain Line 10 (Figure 3-3r), which captures drainage from the lower yard and slopes leading up to the northern cooling tower.

The lateral extent of the exceedances has been defined by samples with results less than ISLs, not detected greater than reporting limits, or by topographical features. The vertical extent of the exceedances has been defined by samples with results less than ISLs, not detected greater than reporting limits, or by bedrock, except at the following locations:

- AOC1-T5D (total PCBs): Total PCBs were detected at 3 feet bgs at a calculated concentration of 248 µg/kg, slightly greater than the ISL. This exceedance does not represent data gaps warranting further investigation. The concentration in the deepest sample does not exceed the RBC for total PCBs (1,400 µg/kg) and does not pose an unacceptable risk to receptors. However, because concentrations increase with depth, AOC 1 just south of the highway is recommended to be considered for inclusion in the CMS/FS. This location is included in the NTRCA.

- AOC4-GB10, AOC4-GB11, AOC4-GB12, SD-25, and SD-26: Deeper samples were not feasible at these locations due to refusal. PCB concentrations at these locations are not considered to be a data gap that requires further investigation.

Two additional samples were collected from AOC 1 during groundwater remedy construction (AOC1-GRBS-MW-10D and AOC1-GRBS-MW-11D) (Appendix F, Table F-1g). There were no exceedances of ISLs.

Dioxins and Furans: Samples were collected from 64 locations at depths ranging from 0 foot to 113 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ avian (ECV), TEQ human (RRSL), and TEQ mammals (ECV) were exceeded at one or more of the following locations (Table 3-2j and Figures 3-2s through 3-2u and 3-3s through 3-3u):

- AOC1-1
- AOC1-3
- AOC1-5 through AOC1-8
- AOC16-5
- AOC1-BCW6 through AOC1-BCW16
- AOC1-BCW18 through AOC1-BCW26
- AOC1-BCW28 through AOC1-BCW30
- AOC1-T1e
- AOC1-T1f
- AOC1-T1g
- AOC1-T2g through AOC1-T2j
- AOC1-T5D
- AOC1-T6D
- AOC1-T7
- AOC1-T8
- AOC4-GB10 through AOC4-GB12
- Old Well-BCW-1
- Old Well-BCW-2
- PA-14
- PA-15
- SD-14
- SD-15
- SD-26
- TCS-4
- TCS4-E
- TCS4-N
- TCS4-S

These locations are clustered around TCS-4, on the western slope of the TCS, at the gabions at the end of AOC-4 Debris Ravine, at the I-40 culvert, and at the mouth of Bat Cave Wash. Exceedances are summarized as follows:

- TEQ avian exceeded the ISL (16 ng/kg) in 50 samples taken from depths between 0 foot and 20 feet bgs (Table 3-2j). The greatest TEQ avian concentration of 600 ng/kg was detected at sample location TCS4-E at 4 feet to 5 feet bgs. Sample location TCS4-E was collected from the floor of Bat Cave Wash near TCS-4, the Old Well-BCW1, and Old Well-BCW2 (Figure 3-3s).

- TEQ human exceeded the ISL (50 ng/kg) in 32 samples taken from depths between 0 foot and 20 feet bgs (Table 3-2j). The greatest TEQ human concentration of 1,100 ng/kg was detected at sample location AOC1-T5D at 2 feet to 3 feet bgs. AOC1-T5D is located at the culvert that goes beneath I-40 (Figure 3-3t).

- TEQ mammal exceeded the ISL (5.58 ng/kg) in 89 samples taken from depths between 0 foot and 20 feet bgs (Table 3-2j). The greatest TEQ human concentration of 1,100 ng/kg was detected at sample location AOC1-T5D at 2 feet to 3 feet bgs. AOC1-T5D is located at the culvert that goes beneath I-40 (Figure 3-3u).

The lateral extents of the TEQ avian exceedances have been defined by samples with results less than ISLs, not detected greater than reporting limits, or by topographical features.

Two additional samples were collected from AOC 1 during groundwater remedy construction (AOC1-GRBS-MW-10D and AOC1-GRBS-MW-11D) (Appendix F, Table F-1h). There were no exceedances of ISLs.

Results of TCS-4 Opportunistic Samples

During preparation for TCS-4 well decommissioning, a sample was collected from the tar-like pipe wrap that covers the lateral pipe connected to TCS-4, to evaluate whether the dioxins detected in the soil samples around TCS-4 may have originated from the pipe wrap material (CH2M 2015c). The section of pipe that was sampled was exposed at the edge of Bat Cave Wash, about 200 feet south of TCS-4 and near the location of SWMU 1-25, and appeared to have been exposed at the surface for a significant length of time, as compared to the buried pipe unearthed at the TCS-4 wellhead. This sample was collected with support from asbestos-certified TCS staff and analyzed for dioxins and asbestos.

Analytical results for the sample (SWMU1-PipeWrap-01) are presented in Table 4 of the *Decommissioning Plan for Topock Compressor Station Well Number 4 (TCS-4)* (CH2M 2015c). The following is a summary of the laboratory analytical results:

- The sample was found to be ACM with 12% by area reported as chrysotile asbestos fibers by polarized light microscopy bulk analysis.
- Dioxin and furans were detected at concentrations of 390 ng/kg for TEQ human, 480 ng/kg for TEQ avian, and 390 ng/kg for TEQ mammals. These concentrations are greater than the TEQs for humans, avians, and mammals.

4.1.1.7 SWMU 1 and AOC 1 Conceptual Site Model

Graphical CSMs for SWMU 1 (Figures 4-1b), AOC 1 south (Figures 4-1c), and AOC 1 north (Figures 4-1d) were developed based on Site history and background reported in the Soil RFI/RI Work Plan (CH2M 2013a). Figures 4-1e through 4-1k provide a graphical CSM of SWMU 1 and AOC 1 south, including a series of cross sections through Bat Cave Wash. The CSM was updated to reflect findings of investigations to date. Exhibits 4-4 and 4-5 present the following information for SWMU 1 and AOC 1:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the *Data Quality Objectives Technical Memorandum – Part A Soil Investigation at the Pacific Gas and Electric Company Topock Compressor Station, Needles, California* (Soil Part A DQOs TM) (CH2M 2010), and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

TCS-4 is included in the CSM for AOC 1 south.

Between the early 1950s and the mid-1960s, regular discharges of untreated wastewater from the TCS were directed into the SWMU 1 area of Bat Cave Wash. This discharge produced a more or less continuous movement of chromium-rich wastewater from the surface to the water table, with infiltration driven by the head created in the discharge basin.

Beginning in the mid-1960s, the wastewater was treated onsite, with CrVI being converted to CrIII by addition of sulfur dioxide (CH2M 2007a). This process produced a pH of 3.4 to 3.5; the CrIII remained soluble, and minimal precipitated solids were produced in the reaction tank. Around the same time, the percolation basin (SWMU 1) was constructed in Bat Cave Wash. Treated wastewater in the reaction tank was then transported by pipeline to SWMU 1.

CrIII becomes insoluble at a pH of approximately 4.5 and greater; therefore, the pH rise resulting from the treated water's exposure to the soil, salts, air, and water present in SWMU 1 would be expected to result in precipitation of CrIII hydroxide precipitates between the ground surface and a few feet below. The remainder of the treated wastewater, now at a more neutral pH and without dissolved chromium, continued to percolate toward the water table. This practice continued until 1969, when the two-step process removed CrIII from the treated wastewater.

This is the most likely explanation of how the elevated CrT came to be found in shallow soils of SWMU 1. The CrIII hydroxides have very low solubility and would not be expected to be significantly leached by later rain events. In addition, dissolved CrIII is essentially immobile in water except at very low pH or if strongly complexed. Below 15 feet, the CrT drops to concentrations within or similar to BK levels, and CrVI is consistently less than the detection limit.

This conceptual model suggests that CrVI was transported to groundwater by discharge-driven head at the surface during the period of untreated wastewater discharge, which maintained an unbroken flow of CrVI-rich discharge water from the surface to the water table during active discharge. CrVI is only weakly adsorbed to mineral surfaces and is easily exchanged off those surfaces by later rainfall infiltration. The result of this process is CrVI retention being limited to upper vadose zones where pore water was retained following cessation of discharge, and where slow evaporation produced CrVI evaporite mineral crusts, a portion of which remain in recent samples.

Most of the chromium in shallow soils is in the insoluble, immobile CrIII state. The absence of CrVI in soils below 15 feet may also be due to the lack of evaporation in deep alluvial vadose material; hence, the CrVI remained in solution and eventually got flushed to the water table in the years immediately following the cessation of untreated blowdown discharge.

As discussed in Section 4.1.1.2, white powder material along the eastern slope of SWMU 1 below the sludge drying beds may be residual mineral salts from the percolation pond or water conditioning sludge from the sludge drying beds or AOC 21. Water conditioning sludge has generally lesser contaminant concentrations, whereas residual mineral salts from the percolation bed may contain greater concentrations of chromium. White powder in SWMU 1 yielded relatively high chromium results, indicating that it may be water-softener conditioning sludge that was in contact with chromium discharges.

For both SWMU 1 and AOC 1 south, the primary sources of contamination are as follows:

- Historical direct discharge of untreated chromium-bearing wastewater into Bat Cave Wash, the Former Percolation Bed (SWMU 1), and TCS-4
- Potential overflow or discharges from the SWMU 1 percolation bed
- Discharges from the TCS-4 injection well

Metals contamination is likely associated with wear metals from industrial equipment, galvanized coatings, and vehicles and includes:

- Barium
- Chromium
- Copper
- Lead
- Nickel
- Zinc

Incidental spills and stormwater runoff from the western side of the TCS (storm drains and sheet flow) may have contributed to contamination in Bat Cave Wash from the following compounds:

- Metals
- PCBs
- PAHs
- CLP inorganics
- Dioxins and furans

The discharge of water-softener treatment sludge from the TCS to Bat Cave Wash likely contributed to CLP inorganics and metals contamination at AOC 1 and SWMU 1. Stormwater runoff from AOC 14 north of I-40 may have contributed to wear metals and dioxins and furans contamination in Bat Cave Wash. Contamination released from debris and burn material located in AOC 27 could potentially have been transported to the lower portions of AOC 1 through surface runoff, contributing to metals, PAHs, and dioxins and furans contamination. Discharge from the Debris Ravine (AOC 4) may be partly responsible for contamination in AOC 1 south and SWMU 1; dioxins and furans and metals contamination in fill, debris, and surface soil in AOC 4 could have been entrained in surface water runoff and deposited in portions of AOC 1 and SWMU 1. In areas of SWMU 1 and AOC 1, elevated concentrations of dioxins and furans coincide with elevated concentrations of CrVI and CrT at the following locations:

- SWMU1-19
- SWMU1-20
- SWMU1-25
- SWMU1-29
- AOC1-1
- AOC1-3
- AOC1-T5D

Elevated molybdenum was also detected at SWMU1-25, but was ND or less than the ISL at the other locations mentioned. Concentrations of dioxins and furans peaked below the surface interval at some of these locations (for example, 2 feet to 3 feet bgs at SWMU1-19, SWMU1-29, and AOC1-T5D; 9 feet to 10 feet bgs at SWMU1-20). Concentrations of CrVI and CrT peaked at the same depths as dioxins and furans at the following locations:

- SWMU1-25
- AOC1-1
- AOC1-3 (surface interval)
- SWMU1-29 (2 feet to 3 feet bgs)

The source of dioxins and furans at these locations is not known, but the colocation with chromium identified suggests they may be associated with materials discharged into Bat Cave Wash. It is DTSC's opinion that potential source of dioxins and furans is from cooling tower and oily wastewater discharges into Bat Cave Wash.

Surface and shallow soils are the primary source media. From surface soil, contaminants could have migrated to shallow and deeper soils. Shallow soils may act as a secondary source medium to subsurface soil, and subsurface soil may act as a secondary source medium to groundwater.

Contaminated wastewater infiltrated through the vadose zone to affect subsurface soil and groundwater, as CrVI contamination is present in groundwater underneath AOC 1 and SWMU 1. Most of the chromium groundwater plume originated from releases from AOC 1 and SWMU 1. Injection of wastewater into TCS-4 and overflows at the wellhead could account for contamination present in deeper subsurface soil and groundwater.

Historically, COPCs or COPECs in surface soil in SWMU 1 and AOC 1 south have been eroded and entrained in stormwater and surface water runoff during flow events and have been subsequently redeposited downstream (further north) in Bat Cave Wash (AOC 1 north). Repeated erosion and deposition of soil at SWMU 1 and AOC 1 has likely resulted in mixing of surface and near-surface soils in the unit. The thick vegetation, widening of the channel near the end of Bat Cave Wash, and obstruction of flow by the NTH greatly reduce the energy of flow during runoff events, resulting in deposition of entrained soil within the vegetated area in AOC 1 north. The blockage at NTH predates the TCS. The railroad bridge and associated culvert also predate the TCS. I-40 was built in the 1960s, which resulted in construction of the I-40 bridge and culverts across the wash.

Other potential secondary sources of contamination, which are not included in Exhibits 4-4 and 4-5, are as follows:

- Stormwater runoff from I-40 and the railroad (from culverts discharging to Bat Cave Wash) could have resulted in the release of TPH, PAHs, lead, and wear metals and galvanized coatings into AOC 1 adjacent to and north of these transportation routes.
- Dioxin and furan and PAH contamination is likely, in part, related to the following activities in the vicinity of Bat Cave Wash:
  - Historical dumping
  - Burning of garbage
  - Wildfires
  - Vehicle and locomotive exhaust
  - Military activities
- Runoff from the former Workman's Roadhouse and service station, a vehicle maintenance shop, may have contributed to TPHs, PAHs, and metals contamination near the mouth of Bat Cave Wash.

These secondary sources are less likely to have been a substantial source of contamination in the wash based on Site data collected to date.

Because chromium-containing wastewater from the TCS was discharged to Bat Cave Wash, and topography surrounding the wash confined wastewater and surface water flows to the bed of the wash, the potential lateral extent of soil contamination associated with SWMU 1 and AOC 1 is constrained within the boundaries of the banks of the wash, except where discharges or runoff along the slope would have occurred. The vertical extent of soil contamination within SWMU 1 and AOC 1 has been sufficiently defined, except for some metals and PCBs at specific locations, as described in the analytical results sections (4.1.1.5 and 4.1.1.6).

Contamination associated with SWMU 1 and AOC 1 south may also exist on the eastern sidewall of Bat Cave Wash east of SWMU 1 based on results of samples collected from white powder material observed on the eastern sidewall. Additionally, water-softener conditioning sludge could have been contaminated by chromium discharges.

Windblown contamination from within the wash around SWMU 1 and AOC 1 is influenced by the topography of the wash. Windblown contaminant deposition, if any, is expected to be limited to surface soils.

Exhibit 4-4. Conceptual Site Model – SWMU 1
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Discharge of wastewater from TCS to Bat Cave Wash and percolation bed **COPCs include:** • Metals • CLP inorganics	Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Shallow soil • Potential sediments • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[b] • Potential discharge of groundwater to surface water [a]	**Human:** • Recreational user • Tribal user • Maintenance worker • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals
Runoff from TCS, stormwater discharge, and AOC 4 **COPCs include:** • Metals • CLP inorganics • PAHs • TPH • PCBs • Dioxins and furans	Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Shallow soil • Potential sediments • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[b] • Potential discharge of groundwater to surface water [a]	
Discharge of water treatment softener sludge to Bat Cave Wash **COPCs include:** • CLP inorganics • Metals	Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and / surface water runoff	• Surface soil • Shallow soil • Potential sediments • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[b]	

[a] Discharge to surface water is an insignificant transport pathway, as evaluated in the groundwater risk assessment (Arcadis 2009c).

[b] Enclosed space accumulation refers to any area where vapor can accumulate.

Exhibit 4-5. Conceptual Site Model – AOC 1
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

<table>
<tr><th>Primary Source</th><th>Primary Source Media</th><th>Potential Release Mechanism</th><th>Secondary Source Media</th><th>Potential Secondary Release Mechanism</th><th>Potential Human and Ecological Receptors</th></tr>
<tr>
<td>Runoff from TCS, storm drains, AOC 4, SWMU 1, AOC-27, and potentially AOC 14
COPCs include:
• Metals
• CLP inorganics
• PAHs
• TPH
• PCBs
• Dioxins and furans</td>
<td>• Surface soil</td>
<td>• Percolation or infiltration
• Potential entrainment in stormwater and surface water runoff</td>
<td>• Surface soil
• Shallow soil
• Potential sediment
• Potential groundwater</td>
<td>• Wind erosion and atmospheric dispersion of surface soil
• Potential volatilization and atmospheric dispersion
• Potential discharge of groundwater to surface water [a]</td>
<td rowspan="2">**Human:**
• Recreational user
• Tribal user
• Maintenance worker
• Hypothetical future groundwater user
Ecological:
• Plants
• Invertebrates
• Birds
• Mammals</td>
</tr>
<tr>
<td>Discharge of wastewater and water-softener sludge from TCS to Bat Cave Wash/TCS-4
COPCs include:
• Metals
• CLP inorganics</td>
<td>• Surface soil
• Shallow soil</td>
<td>• Percolation or infiltration
• Potential entrainment in stormwater and surface water runoff</td>
<td>• Surface soil
• Shallow soil
• Potential sediment
• Potential groundwater</td>
<td>• Wind erosion and atmospheric dispersion of surface soil
• Potential volatilization and atmospheric dispersion
• Potential discharge of groundwater to surface water [a]
• Potential wastewater injection to groundwater</td>
</tr>
</table>

[a] Discharge to surface water is an insignificant transport pathway, as evaluated in the groundwater risk assessment (Arcadis 2009c).

4.1.1.8 Evaluation of Data Against Data Quality Objectives for SWMU 1 and AOC 1

This section discusses the evaluation of data against DQOs for SWMU 1 and AOC 1.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density, with the possible exception of the following in SWMU 1:

- Vertical extent of zinc at SSB-4
- Vertical extent of CrT, cobalt, copper, and nickel at SWMU1-14
- Vertical extent of CrT and zinc at SWMU1-WP-10

And with the exception of the following at AOC 1:

- Vertical extent of total PCBs just south of the highway (AOC1-T5D)

Areas and sample locations in SWMU 1 and AOC 1 with data gaps may be considered for inclusion in the CMS/FS. Several locations within SWMU 1 and AOC 1 are within NTCRA target action areas. SWMU 1 and AOC 1 data will be reevaluated after the NTCRA is complete.

Tables 3-1a through 3-1i provide the analytical results for SWMU 1, and Tables 3-2a through 3-2k provide the analytical results for AOC 1. Figures 3-2a through 3-2u show the analytical results for AOC 1 north, and Figures 3-3a through 3-3u show analytical results for SWMU 1 and AOC 1 south. Summaries of the frequency of detection, maximum detected value, and number of exceedances of the data against each screening value for SWMU 1 and AOC 1 are presented in Tables 3-1i and 3-l, respectively.

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 291 samples were collected from 62 locations, ranging from 0 foot to 90 feet bgs for SWMU 1. For AOC 1, 426 samples were collected from 113 locations, ranging from 0 foot to 82 feet bgs. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry parameters
- Pesticides
- Dioxins and furans
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data for both SWMU 1 and AOC 1 are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach. The results for the SWMU 1 and AOC 1 investigation units are presented here. Note that for the groundwater evaluation, SWMU 1 was combined with the southern portion of AOC 1:

- **SWMU 1 and AOC 1 South**: Of the 13 COPCs and COPECs with concentrations that exceed BK, only CrVI, molybdenum, and vanadium concentrations exceed the calculated soil screening levels (SSLs) for this unit. Figure C-2 of Appendix C shows the forecast groundwater concentrations for the COPCs and COPECs evaluated using the screening model. The figure shows that none of the modeled COPC and COPEC concentrations are forecast to exceed the UTL for groundwater over the 100-year simulation period.

- **AOC 1 North:** Of the 13 COPCs and COPECs with concentrations that exceed BK, only CrVI, molybdenum, and vanadium concentrations exceed the calculated SSLs for this unit. Figure C-4 of Appendix C shows the forecast groundwater concentrations for the COPCs and COPECs evaluated using the screening model. The figure shows that none of the modeled COPC and COPEC concentrations are forecast to exceed the UTL for groundwater over the 100-year simulation period.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and/or IMs. During implementation of the RFI/RI Work Plan, soil characteristic samples were collected at the following locations in SWMU 1:

- SWMU1-18
- SWMU1-19

And at the following locations at AOC 1:

- AOC1-BCW7
- AOC1-BCW13
- AOC1-BCW25
- AOC1-T2h
- AOC1-T5D
- AOC1-T6D

Table 3-37 presents the results.

These data, along with the nature and extent data collected, are sufficient to support CMS/FS, IMs, or both.

Additional Consideration: There may be uncertainty in the lateral extent of contamination for some constituents (for example, dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.

4.1.2 AOC 4 – Debris Ravine

This section provides details about AOC 4 – Debris Ravine.

4.1.2.1 Setting

AOC 4 – Debris Ravine, is located in the southern portion of the TCS immediately south of the facility fence line and is shown on Figure 2-1 and Figures 4-2a through 4-2d. AOC 4 is a narrow, steep-sided arroyo that drains into Bat Cave Wash at the southwestern corner of the TCS. AOC 4 is located on PG&E property, except for a small portion of the westernmost end that extends onto the HNWR. Laterally, the western edge of AOC 4 extends from the toe of the western slope of the ravine at a point directly south of the water tanks to the junction with Bat Cave Wash. The eastern edge extends from the water tanks north along the access road to a line parallel with the southern-most fence line of the TCS, and west along the fence line to the edge of the slope above Bat Cave Wash. AOC 4 includes the slope between the eastern and western boundaries to a point directly downslope of the southwestern corner of the facility fence line.

4.1.2.2 Unit History

The operational history at AOC 4 is not well documented; however, over the years, fill material and debris had been deposited on the ravine's northern and eastern slopes along the southern facility fence line, with some debris accumulating in the bottom of the ravine. The burning of trash occurred within AOC 4, as confirmed by the presence of burned waste material in the ravine. In June 2009, DOI issued an Action Memorandum for a TCRA at AOC 4 (DOI 2009b) and directed PG&E to initiate activities necessary to implement and perform the TCRA. The history of previous investigations, pre-TCRA soil contaminant concentrations, and Agency direction leading to the AOC 4 TCRA are described in the *Final Work Plan for Time-Critical Removal Action at AOC 4 Debris Ravine, PG&E Topock Compressor Station, Needles,* *California* (Alisto et al. 2009), hereafter referred to as the Final TCRA Work Plan. Dioxins were a primary COC driving the removal action, along with the following analytes:

- CrVI (up to 1,560 mg/kg)
- Lead (up to 11,000 mg/kg)
- PCBs (up to 1,900 µg/kg [total PCBs])
- PAHs
- Asbestos

The TCRA was conducted from December 2009 through December 2010 as an interim remedial action in accordance with CERCLA, with the intent to stabilize and mitigate the threat of imminent release of the contaminated material. The TCRA interim action was not intended as a substitute for additional investigative or remedial activities that may be required under RCRA, or to be the final remedy for AOC 4. An implementation report (Alisto et al. 2011) for the TCRA at AOC 4 was prepared to document the field work and present the results of the field activities for the project. The conclusions of the TCRA at AOC 4 are summarized in the following paragraphs.

The TCRA objectives were met by the removal action. Removal was conducted in safely accessible areas of AOC 4, additional erosion controls were installed, and confirmation data were collected following the removal action. For areas on PG&E property, the TCRA target end point concentrations were based on commercial/industrial CHHSL and RSLs. To comply with the stated intent and objectives of the AOC 4 TCRA, the target end point concentrations for native alluvial material were based on 10 times the commercial/industrial CHHSL or RSLs. This reduced the amount of native alluvium to be removed, but removed material that may have presented an imminent and substantial endangerment to public health or welfare, or the environment. For areas of AOC 4 on HNWR property, the target endpoints for the removal were BK levels for metals and ECVs for organics, which align with the Part A Phase 1 RFI/RI ISLs.

Based on the confirmation data set and installation of erosion control measures, the substantial threat of release of contaminated material from AOC 4 has been stabilized and mitigated. AOC 4 confirmation soil data have been carried forward to the RFI/RI process and are used in this data gaps evaluation.

Additional postconstruction activities are ongoing at this AOC and include inspection and maintenance of SoilTac soil stabilization and the gabion at the downstream end of the Debris Ravine. SoilTac soil stabilizer will be reapplied as necessary, based on inspections. Slopes in the former Debris Ravine are generally stable and resistant to erosion. Inspection will also include examining steep slopes in native alluvium for indications of slope movement or instability. Run-on controls were left in place above the upper slope. Concrete barriers were also installed above the upper slope to keep TCS personnel activities at a safe distance from steeper areas of the slope.

The check-dam and the gabion below the slot canyon are maintained under a periodic inspection program, with special attention to before and after rainfall inspections. Soil that accumulates above the check-dam or the gabion after rainfall events is characterized for proper disposal and removed periodically. Long-term inspections, and O&M of the check-dam and gabion will be included in the CMS/FS.

The Combined RFI/RI Data Set includes confirmation samples collected to characterize soil conditions upon completion of the AOC 4 TCRA and samples collected subsequently during fulfillment of the Soil RFI/RI Work Plan and subsequent data gap work plans. These include samples collected north of the AOC boundary shown on Figures 3-4a through 3-4w. At the time these samples were collected, they were outside the TCS fence line. Since collection of these samples, the southern portion of the fence line was relocated and now incorporates a larger portion of property south of the TCS (it was previously located just south of the TCS buildings between about 80 and 250 feet north of the current location shown on Figure 2-1). Because of this change, some AOC 4 samples are now located inside the fence line. All AOC 4 samples are considered in this DQO evaluation; and, where appropriate, the distinction is made between AOC 4 samples currently located inside or outside the fence line.

4.1.2.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 4 is provided in this section, and Appendix B, Attachment B1 provide boring logs and trench logs with more detailed lithologic descriptions by location.

The AOC 4 ravine is dominated by weathered bedrock overlain by a thin layer of windblown silt. North of the ravine, soil on the TCS bench is an approximately 2- to 3-foot-thick unit of fill material comprising well-graded gravel or silty sand with gravel overlaying bedrock. To the west, at the mouth of the AOC 4 ravine in Bat Cave Wash, soil consists predominantly of well-graded sand with silt and gravel. Before implementation of the TCRA, debris was mixed with soil across the unit. Debris was removed during the TCRA.

Figures 4-2b through 4-2d are cross sections showing lithology for AOC 4.

4.1.2.4 Analytical Results

Appendix B summarizes general field and sample collection methods. Tables 3-3a through 3-3f (outside the fence line) and Tables 3-4a through 3-4j (inside the fence line) provide analytical results for AOC 4,and Figures 3-4a through 3-4w show the sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.1.2.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: *AOC 4 – Outside Fence Line*. Samples were taken from 98 locations that are outside the current fence line and ranged from 0 foot to 10 feet bgs. The ISLs were exceeded in up to 49 samples within AOC 4 – Outside, as shown in Table 3-3a and on Figures 3-4a through 3-4w, for the following analytes:

- Antimony (ECV)
- Barium (BK)
- Cadmium (BK)
- CrVI (BK)
- CrT (BK)
- Cobalt (BK)
- Copper (BK)
- Lead (BK)
- Mercury (ECV)
- Nickel (BK)
- Vanadium (BK)
- Zinc (BK)

The following metals exceeded the ISL 10 or more times:

- Barium was detected exceeding its ISL (410 mg/kg) in 14 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 1,300 mg/kg at sample location AOC4-B03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4a).
- CrVI was detected exceeding its ISL (0.83 mg/kg) in 14 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 16 mg/kg at sample location AOC4-K05 at the surface. This sample was collected in the center of AOC 4 near the top of the slope.

- CrT was detected exceeding its ISL (39.8 mg/kg) in 49 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 160 mg/kg at sample location AOC4-D04 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4c).
- Cobalt was detected exceeding its ISL (12.7 mg/kg) in 17 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 20 mg/kg at sample location AOC4-D03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4d).
- Copper was detected exceeding its ISL (16.8 mg/kg) in 51 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 790 mg/kg at sample location AOC4-B03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4e).
- Lead was detected exceeding its ISL (8.39 mg/kg) in 17 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 220 mg/kg at sample location AOC4-B03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Table 3-4f).
- Nickel was detected exceeding its ISL (27.3 mg/kg) in 42 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 75 mg/kg at sample location AOC4-D02 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4h).
- Vanadium was detected exceeding its ISL (52.2 mg/kg) in 30 samples collected from depths between 0 foot and 10 feet bgs (Table 3-3a). The greatest detected concentration was 100 mg/kg at sample location AOC4-D02 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4i).

The lateral extents of exceedances outside the TCS fence line have been defined by samples less than ISLs, samples not detected greater than reporting limits, or by topographical features (that is, the north-facing wall of the ravine). Lead concentrations in samples from locations AOC4-20 and AOC4-22 (8.8 and 8.7 mg/kg, respectively) located in the southeastern portion of AOC 4 slightly exceed the lead ISL (8.39 mg/kg). These are minor exceedances of the ISL (BK) that are consistent with BK concentrations, are less than the RBC (36 mg/kg), and do not pose unacceptable risks to receptors; therefore, they are not considered a data gap. The vertical extent of exceedances outside the TCS fence line has been defined by samples with results not detected greater than reporting limits or by bedrock.

AOC 4 – Inside Fence Line. Samples were taken from up to 57 locations that are inside the current fence line and ranged from 0 foot to 40 feet bgs. The CSL for CrVI (6.3 mg/kg) was exceeded at 1 location: AOC4-P04 at the surface, where the concentration was 11 mg/kg. BK values were exceeded for the following analytes:

- Barium
- Cadmium
- CrVI
- CrT
- Cobalt
- Copper
- Lead
- Nickel
- Vanadium
- Zinc

The following metals exceeded the BK value 10 or more times:

- CrT was detected exceeding the BK value (39.8 mg/kg) in 33 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4a). The greatest detected concentration was 120 mg/kg at sample location AOC4-40, at 0.5 foot to 1 foot bgs. This sample was collected in a drainage area east of the water tanks (Figure 3-4c).

- Copper was detected exceeding the BK value (16.8 mg/kg) in 33 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4a). The greatest detected concentration was 270 mg/kg at sample location AOC4-27, at 5 feet to 5.5 feet bgs. This sample was collected along the access road to the water tanks (Figure 3-4e).
- Lead was detected exceeding the BK value (8.39 mg/kg) in 11 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4a). The greatest detected concentration was 34 mg/kg at sample location AOC4-O06, at the surface. This sample was collected along the new fence line at the top of the former slope (Figure 3-4f).
- Nickel was detected exceeding the BK value (27.3 mg/kg) in 33 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4a). The greatest detected concentration was 69 mg/kg at sample location AOC4-40, at 0.5 foot to 1 foot bgs. This sample was collected in a drainage area east of the water tanks (Figure 3-4h).
- Vanadium was detected exceeding the BK value (52.2 mg/kg) in 18 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4a). The greatest detected concentration was 82 mg/kg at sample location AOC4-40, at 0.5 foot to 1 foot bgs. This sample was collected in a drainage area east of the water tanks (Figure 3-4i).
- Zinc was detected exceeding the BK value (58 mg/kg) in 10 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4a). The greatest detected concentration was 440 mg/kg at sample location AOC4-32, at the surface to 1 foot bgs. This sample was collected along the former fence line (Figure 3-4j).

The lateral extent of exceedances inside the TCS fence line have been defined by samples less than BK values and CSLs, samples not detected greater than reporting limits, or by topographical features, except at the eastern side of AOC 4 where 2 samples, AOC4-38 and AOC4-40, have metals concentrations that slightly exceed BK. Results were compared to RBCs, and all concentrations were less than their respective RBCs, except for nickel at AOC4-40. The lateral extent of nickel is considered undefined in the eastern portion of AOC 4 outside the fence line. This is in an area with a thin layer of soil on top of bedrock. This single exceedance of nickel is not considered a data gap that requires further investigation.

Two samples in the eastern portion of AOC 4-Inside had results in the deepest samples that slightly exceeded BK concentrations:

AOC4-38:

- Cadmium
- Nickel

AOC4-40:

- Cadmium
- CrT
- Cobalt
- Lead
- Nickel
- Vanadium
- Zinc

Results were compared to RBCs concentration trends with depth, as follows:

- Cadmium and nickel concentrations increase with depth at AOC4-38. Although the cadmium concentration in the deepest sample (2.2 feet bgs) is less than the RBC (5.9 mg/kg), the nickel concentration is not (RBC is less than BK). The vertical extent of cadmium and nickel is considered undefined; however, as deeper samples could not be collected because of bedrock, these exceedances are not considered a data gap requiring further investigation.

- Most metals at AOC4-40 with BK exceedances have concentrations that increase with depth; however, samples were only collected at the surface to 0.5 foot bgs and 0.5 foot to 1 foot bgs. Although most metals concentrations in the 1 foot bgs sample are less than RBCs and therefore do not pose unacceptable risks to receptors, the RBCs for nickel and vanadium are less than BK. The vertical extent of the following analytes is considered undefined:
  - Cadmium
  - CrT
  - Cobalt
  - Nickel
  - Vanadium
  - Zinc

  However, as deeper samples could not be collected because of bedrock, these exceedances are not considered a data gap requiring further investigation.

CLP Inorganics: *AOC 4 – Outside*. No samples collected from locations outside the current fence line were analyzed for CLP inorganics.

AOC 4 – Inside. Samples were taken from 3 locations at depths ranging from 0 foot to 40 feet bgs. No samples had detected results that exceeded their respective CSLs. BK values were exceeded for the following analytes at all locations:

- Aluminum was detected exceeding the BK value (16,400 mg/kg) in 6 samples collected from depths between 0 foot and 30 feet bgs (Table 3-4b). The greatest detected concentration was 20,000 mg/kg at sample location BH-69 at 5 feet to 6 feet bgs and 9 feet to 10 feet bgs. This sample was collected from the installation of a monitoring well near the former fence line south of AOC 5 (Figure 3-4k).
- Calcium was detected exceeding the BK value (66,500 mg/kg) in 3 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4b). The greatest detected concentration was 100,000 mg/kg at sample location AOC4-37 at the surface to 0.5 foot bgs.
- Iron was detected exceeding the BK value (29,303 mg/kg) in 4 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4b). The greatest detected concentration was 32,000 mg/kg at sample location BH-69 at 29 feet to 30 feet bgs. This sample was collected from the installation of a monitoring well near the former fence line south of AOC 5 (Table 3-4l).
- Magnesium was detected exceeding the BK value (12,100 mg/kg) in 6 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4b). The greatest detected concentration was 16,000 mg/kg at sample location BH-69 at 5 feet to 6 feet bgs, 9 feet to 10 feet bgs, and 29 feet to 30 feet bgs. This sample was collected from the installation of a monitoring well near the former fence line south of AOC 5 (Figure 3-4m).
- Manganese was detected exceeding the BK value (402 mg/kg) in 5 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4b). The greatest detected concentration was 520 mg/kg at sample location BH-69 at 5 feet to 6 feet bgs. This sample was collected from the installation of a monitoring well near the former fence line south of AOC 5 (Figure 3-4n).
- Potassium was detected exceeding the BK value (4,400 mg/kg) in 2 samples collected from depths between 0 foot and 40 feet bgs (Table 3-4b). The greatest detected concentration was 5,500 mg/kg at sample location BH-69 at 29 feet to 30 feet bgs. This sample was collected from the installation of a monitoring well near the former fence line south of AOC 5.

The lateral and vertical extents of exceedances have been defined by samples with results not detected greater than reporting limits, by topographical features, or by bedrock. There are two locations where the deepest samples exceed BK values (AOC4-36 [calcium] and BH-69 [magnesium and potassium]). However, this does not represent a data gap requiring further investigation because CLP inorganics are not compounds driving risk; therefore, the minor exceedances of BK values of CLP inorganics at AOC 4 are not considered a data gap requiring further investigation.

PAHs: *AOC 4 – Outside*. Samples were taken from 101 locations at depths ranging from 0 foot to 10 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. The ISLs for B(a)P equivalent (RRSL) and HMW PAHs (ECV) were exceeded at one or more of the following locations (Table 3-3b and in Figures 3-4o and 3-4p):

- AOC4-A01
- AOC4-A01minus
- AOC4-A01S
- AOC4-A02
- AOC4-A03
- AOC4-B01
- AOC4-B01S
- AOC4-B02
- AOC4-B03
- AOC4-C01
- AOC4-C02
- AOC4-C03
- AOC4-D01

These locations are located directly west-southwest of the water tanks and the access road and parking lot adjacent to the water tanks. Exceedances are summarized as follows:

- B(a)P equivalents were detected exceeding their ISL (110 µg/kg) at 13 locations from depths between 0 foot and 10 feet bgs (Table 3-3b). The greatest B(a)P equivalent concentration of 1,100 µg/kg was detected at sample location AOC4-C01 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4o).

- HMW PAHs were detected exceeding their ISL (1,160 µg/kg) at 12 locations from depths between 0 foot and 10 feet bgs (Table 3-3b). The greatest HMW PAH concentration of 10,163 µg/kg was detected at sample location AOC4-B02 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4p).

The lateral extents of exceedances outside the TCS fence line have been defined by samples less than ISLs, samples not detected greater than reporting limits, or by topographical features.

AOC 4 – Inside. Samples were taken from 52 locations at depths ranging from 0 foot to 40 feet bgs. The CSLs for B(a)P equivalent was exceeded at the following locations (Table 3-4c):

- AOC4-28
- AOC4-40
- AOC4-tar

Exceedances are summarized as follows:

- B(a)P equivalent was detected exceeding the CSL of 2,100 µg/kg in 3 samples (Table 3-4c). The greatest concentration of 4,700,000 µg/kg was detected at sample location AOC4-tar. This was a debris sample collected from a piece of tar, in a drainage area east of the water tanks.

- The second greatest B(a)P equivalent concentration was 2,900 µg/kg and was detected at sample location AOC4-40 at the surface to 0.5 foot bgs. This sample was collected in a drainage area east of the water tanks and further down the drainage from the AOC4-tar sample (Figure 3-4o).

The lateral extents of exceedances inside the TCS fence line have been defined by samples less than CSLs or not detected greater than reporting limits, with the exception of the area south and southeast of AOC4-40. The lateral extent of B(a)P equivalents is considered undefined in the vicinity of AOC4-40 and is recommended to be considered for inclusion in the CMS/FS.

The vertical extent of exceedances has been defined by samples with results not detected greater than reporting limits. There are many locations within AOC 4 where the deepest sample result exceeds the CSL for B(a)P equivalents (Figure 3-4o). This does not represent a data gap requiring further investigation because bedrock and refusal was encountered at these locations, preventing the collection of deeper samples.

VOCs and SVOCs: *AOC 4 – Outside*. No VOCs or SVOCs were detected in AOC 4 – Outside samples.

AOC 4 – Inside. Samples were collected from 4 locations within AOC 4 – Inside. Dibenzofuran and methyl acetate were detected in 1 sample each (Table 3-4d) at 1 order of magnitude and 7 orders of magnitude less than their respective CSLs (BK values are not established). The analytical results for AOC 4 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time.

TPH: *AOC 4 – Outside*. A sample was collected from 1 location (PA-17) at the surface to 1 foot bgs. No ISLs were exceeded (Table 3-3c).

AOC 4 – Inside. Eight samples were collected from 1 location (BH-69) between 0 foot and 40 feet bgs. No CSLs were exceeded (Table 3-4e).

General Chemistry: *AOC 4 – Outside*. No outside samples were analyzed for general chemistry parameters.

AOC 4 – Inside. Samples were collected from 3 locations between 0 foot and 40 feet bgs and analyzed for pH and total organic carbon. No CSLs or BK values are established for these parameters (Table 3-4f).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: *AOC 4 – Outside*. Samples were taken from up to 101 locations at depths ranging from 0 foot to 10 feet bgs. PCBs were evaluated as individual Aroclors and as total PCBs. The ISLs for Aroclor 1254 (RRSL), Aroclor 1260 (RRSL), and total PCBs (ECV) were exceeded at up to 39 locations within AOC 4 outside the fence line, as shown in Table 3-3d. Exceedances were detected throughout the south-southwest facing slope of the ravine beneath the access road, and at the gabions where contamination may be accumulating (Figures 3-4q through 3-4t):

- Aroclor 1254 was detected exceeding the ISL (240 µg/kg) in 23 samples collected from depths between 0 foot and 1.5 feet bgs (Table 3-3b). The greatest Aroclor 1254 concentration of 5,900 µg/kg was detected at sample location AOC4-H04 at the surface. This sample was collected on the bedrock slope, west of the access road to the water tanks (Figure 3-4r).
- Aroclor 1260 was detected exceeding the ISL (240 µg/kg) in 2 samples collected from depths between 0 foot and 1.5 feet bgs (Table 3-3b). The greatest Aroclor 1260 concentration of 640 µg/kg was detected at sample location AOC4-G06 at the surface. This sample is located on the bedrock slope, west of the access road to the water tanks (Figure 3-4s).
- Total PCBs were detected exceeding the ISL (204 µg/kg) in 27 samples collected from depths between 0 foot and 1.5 feet bgs (Table 3-3b). The greatest total PCBs concentration of 6,281 µg/kg was detected at sample location AOC4-H04 at the surface (Figure 3-4t).

The lateral extent of exceedances outside the TCS fence line have been defined by samples less than ISLs, not detected greater than reporting limits, or by topographical features. The vertical extent of exceedances has been defined by samples with results less than the ISL or not detected greater than reporting limits. There are many locations where the deepest sample result exceeds the ISL for PCBs. This does not represent a data gap requiring further investigation because bedrock and refusal was encountered at these locations, preventing the collection of deeper samples.

AOC 4 – Inside. Samples were taken from 52 locations at depths ranging from 0 foot to 40 feet bgs. The CSLs for Aroclor 1248, Aroclor 1254, and Aroclor 1260 were exceeded in shallow soils at one or more of the following locations:

- AOC4-24
- AOC4-25
- AOC4-27
- AOC4-28
- AOC4-39
- AOC4-40

Exceedances are summarized as follows:

- Aroclor 1248 was detected exceeding the CSL (950 µg/kg) in 4 samples collected from depths between 0 foot and 3 feet bgs (Table 3-4c). The greatest detected concentration was 2,900 µg/kg.
- Aroclor 1254 was detected exceeding the CSL (970 µg/kg) in 14 samples collected from depths between 0 foot and 3 feet bgs. The greatest detected concentration was 6,600 µg/kg.
- Aroclor 1260 was detected exceeding the CSL (990 µg/kg) in 10 samples collected from depths between 0 foot and 1 foot bgs. The greatest detected concentration was 4,300 µg/kg. The greatest detected concentrations were from sample location AOC4-28 at the surface to 1 foot bgs. This sample was collected southwest of the water tanks along the access road (Figure 3-4q).

The lateral extent of exceedances inside the TCS fence line has been defined by samples less than CSLs, not detected greater than reporting limits, or by topographical features, with the exception of the area south and southeast of AOC4-40. The lateral extent of PCBs is considered undefined in the vicinity of AOC4-40 and is recommended to be considered for inclusion in the CMS/FS.

The vertical extent of exceedances has been defined by samples with results less than the CSL or not detected greater than reporting limits. There are many locations where the result for the deepest sample exceeds the CSL for PCBs. This does not represent a data gap requiring further investigation because bedrock and refusal was encountered at these locations, preventing the collection of deeper samples.

Dioxins and Furans: *AOC 4 – Outside*. Samples were collected from 101 locations at depths ranging from 0 foot to 10 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ avian (ECV), TEQ human (RRSL), and TEQ mammals (ECV) were exceeded up to 60 times, as follows:

- TEQ avian samples were detected exceeding its ISL (16 ng/kg) at 28 locations from depths between 0 foot and 1 foot bgs (Table 3-3e). The greatest TEQ avian concentration of 280 ng/kg was detected at sample location AOC4-B03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4u).
- TEQ human samples were detected exceeding its ISL (50 ng/kg) at 10 locations from depths between 0 foot and 1 foot bgs (Table 3-3e). The greatest TEQ human concentration of 250 ng/kg was detected at sample location AOC4-B03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4v).
- TEQ mammal samples were detected exceeding its BK value (5.58 ng/kg) at 60 locations from depths between 0 foot and 1 foot bgs (Table 3-3e). The greatest TEQ human concentration of 1,100 ng/kg was detected at sample location AOC4-B03 at the surface. This sample was collected in the southern portion of AOC 4, west of the access road and water tanks (Figure 3-4w).

These exceedances are found throughout AOC 4 along the south-southwest facing slope of the ravine beneath the access road and west toward Bat Cave Wash. The primary source of dioxins and furans in AOC 4 is the burning and subsequent dumping of TCS waste.

The lateral extents of TEQ avian and TEQ human exceedances outside the TCS fence line have been defined by samples less than ISLs, not detected greater than reporting limits, or by topographical features. The vertical extents of TEQ avian and TEQ human exceedances outside the TCS fence line have been defined by samples with results less than the ISL or not detected greater than reporting limits. There are many locations where the deepest sample result exceeds the ISL for TEQ avian or TEQ human. This does not represent a data gap requiring further investigation because bedrock and refusal was encountered at these locations, preventing the collection of deeper samples.

The lateral and vertical extents of the TEQ mammal exceedances outside the TCS fence line have not been defined by samples with results less than ISLs or not detected greater than reporting limits, as shown on Figures 3-4a through 3-4w. These exceedances of the ISLs do not represent a data gap requiring further investigation because the TEQ mammal ISL (5.58 ng/kg) is the most conservative and lowest screening level for dioxin TEQ. Further investigation to assess the vertical extent of TEQ mammal is not warranted.

AOC 4 – Inside. Samples were collected from 56 locations at depths from 0 foot to 7.5 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSL for TEQ human (220 ng/kg) was exceeded at AOC4-39, as shown in Table 3-4i.

TEQ human was detected exceeding its CSL in 2 samples collected at AOC4-39 from depths between 0 foot and 0.5 foot bgs (Table 3-4f). The greatest TEQ human concentration of 470 ng/kg was detected at sample location AOC4-39 at the surface to 0.5 foot bgs. This sample was collected north of the water tanks (Figure 3-4v).

The lateral extent of TEQ human exceedances has been defined by samples less than its CSL, not detected greater than reporting limits, or by topographical features, with the exception of the area south and southeast of AOC4-40. The lateral extent of TEQ human is considered undefined in the vicinity of AOC4-40 and is recommended to be considered for inclusion in the CMS/FS.

The vertical extent of TEQ human exceedances has been defined by samples with results less than the CSL or not detected greater than reporting limits. There are several locations where TEQ human exceed the CSL at the deepest sample level. This does not represent a data gap requiring further investigation because bedrock and refusal was encountered at these locations, preventing the collection of deeper samples.

4.1.2.5 AOC 4 Conceptual Site Model

Figures 4-2a through 4-2d show a graphical CSM and cross section developed for AOC 4 based on Site history and background reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-6 presents the following information for AOC 4:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part A DQOs TM (CH2M 2010), and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination for metals and PCBs at AOC 4 are historical disposal of debris (including ACM) from the TCS into the ravine. The primary source of PAHs and dioxins and furans are residuals from apparent historical burning of TCS waste in and around the ravine. Many of the primary source materials were removed during the AOC 4 TCRA.

Exhibit 4-6. Conceptual Site Model – AOC 4 – Debris Ravine

RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

<table>
<tr><th>Primary Source</th><th>Primary Source Media</th><th>Potential Release Mechanism</th><th>Secondary Source Media</th><th>Potential Secondary Release Mechanism</th><th>Potential Human and Ecological Receptors</th></tr>
<tr><td>Disposal of debris (including ACM)
COPCs include:
• Metals
• PCBs</td><td>• Surface soil
• Subsurface soil</td><td>• Percolation or infiltration
• Potential entrainment in stormwater and surface water runoff</td><td>• Subsurface soil</td><td>• Wind erosion and atmospheric dispersion of surface soil
• Potential volatilization and atmospheric dispersion</td><td rowspan="2">Human:
• Recreational user[a]
• Tribal user[a]
• Maintenance worker [a,b]
• Commercial worker [b]
Ecological:
• Plants[a]
• Invertebrates[a]
• Birds[a]
• Mammals[a]</td></tr>
<tr><td>Burned material
COPCs include:
• Dioxins and furans
• PAHs</td><td>• Surface soil
• Subsurface soil</td><td>• Percolation or infiltration
• Potential entrainment in stormwater and surface water runoff</td><td>• Subsurface soil</td><td>• Wind erosion and atmospheric dispersion of surface soil</td></tr>
</table>

[a] Outside the TCS fence line

[b] Inside the TCS fence line

The presence of metals at AOC 4 is likely related to the disposal of debris and trash. The presence of PAHs and dioxins and furans at AOC 4 is likely related to the historical TCS practice of burning waste. PCBs are likely sourced from the disposal of debris from the TCS; Aroclor 1254 and 1260 are predominantly found in electrical transformers. Incidental spills along the southern side of the TCS and subsequent discharge into the AOC 4 ravine from surface water runoff could also have resulted in the release contaminants into the ravine.

CLP inorganics contamination, limited to sample location BH-69, may be associated with white powder material from lime treatment sludge observed at the TCS or may be reflective of background conditions. In general, the greatest contaminant concentrations are found on the bedrock slopes along the south-southwest facing walls of the ravine beneath the water towers and at the check-dam in the lower ravine.

COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 4, this migration may result in COPCs at the top of the hillside inside the fence line migrating down the hillside into the base of the ravine. The steep slope of AOC 4 can be observed on Figure 4-2b, which shows an approximately 60-foot change in elevation from the TCS fence line to the AOC 4 boundary. Migration of entrained surface soil may continue down the AOC 4 ravine and into Bat Cave Wash, as shown on Figure 4-2a.

The primary release mechanisms are direct releases of contaminated particulates or the leaching of contaminants from the historical debris or burned material remaining after the AOC 4 TCRA (Figure 4-2a). Contaminants present in the primary source materials could have been deposited on surface soil as particulates or entered surface soil as dissolved constituents through infiltration of rainfall and surface water before the primary source materials were removed during the TCRA. Contaminated media may have been transported downhill into the ravine through depositional processes. Contaminants released from the historical debris located on the slopes of AOC 4 before the TCRA could also have been transported westward into Bat Cave Wash and SWMU 1 and AOC 1 during surface water flow events. Contamination in sediment has likely accumulated at the check-dam in the lower ravine, where some of the greatest contaminant concentrations are found:

- Figure 3-4e copper
- Figure 3-4r Aroclor 1254
- Figure 3-4s Aroclor 1260
- Figure 3-4t total PCBs

Primary source media consist of surface and subsurface soils. Contaminants could have leached from surface soils and shallow soil into underlying deeper soils. Across much of the AOC 4 ravine, leaching of contaminants to deeper soils is prevented by shallow bedrock (Figure 4-2b). Migration from subsurface soil to groundwater is highly unlikely as a potential secondary pathway due to the presence of shallow bedrock well above the water table beneath AOC 4 (Figures 4-2b through 4-2d).

Windblown dust contamination from small particles of debris or contaminated surface soil within AOC 4 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils. There is a potential for windblown transportation of contaminants from AOC 4 to nearby areas of the ravine. Surface runoff from AOC 4 to Bat Cave Wash could also have transported small pieces of debris from AOC 4 to Bat Cave Wash.

4.1.2.6 Evaluation of Data Against Data Quality Objectives for AOC 4

This section summarizes the evaluation of data against DQOs for AOC 4.

AOC 4 – Outside

This section summarizes the data evaluation against DQOs for AOC 4 - Outside.

Decision 1 (Nature and Extent Determination): AOC 4 was split into two parts for the nature and extent evaluation: locations outside the fence line (AOC 4 – Outside) and locations inside the fence line (AOC 4 – Inside). AOC 4 – Outside locations were screened against Part A investigation screening values. AOC 4 – Inside locations, were screened against Part B investigation screening levels because these locations are no longer accessible to human (noncommercial) and ecological receptors outside the fence line. Nature and extent have been sufficiently defined laterally and vertically given laboratory results, current data density, and Site conditions.

Analytical results are presented in Tables 3-3a through 3-3e for AOC 4 – Outside sample locations. Results are also presented on Figures 3-4a through 3-4w. Table 3-4j provides the following information for outside locations:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 241 samples were collected from 169 locations ranging from 0 foot to 12 feet bgs for AOC 4. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry parameters
- Pesticides
- PCBs
- Dioxins and furans.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): Samples from AOC 4 were not analyzed for a threat to groundwater because this Site is situated directly on bedrock, and the depth to groundwater is between approximately 130 feet and 200 feet bgs (based on average water table elevation of 456 feet above mean sea level [amsl]). (Figure 4-2b). Thus, AOC 4 does not represent a threat to groundwater.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are insufficient to support CMS/FS and/or IMs. The following data gap was identified in the Soil RFI/RI Work Plan: Soil physical parameters to support the CMS/FS.

No samples from AOC 4 were analyzed for soil characteristics during implementation of the RFI/RI Work Plan. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

Additional Considerations: Long-term inspections, COPC sampling, and O&M of the check-dam and gabion will be included in the CMS/FS.

AOC 4 - Inside

This section summarizes the data evaluation against DQOs for AOC 4 - Inside.

Decision 1 (Nature and Extent Determination): Nature and extent have not been sufficiently defined laterally for B(a)P equivalents, PCBs, and dioxins and furans in the vicinity of AOC4-40.

Analytical results are presented in Tables 3-4a through 3-4i for AOC 4 – Inside sample locations. Results are also presented on Figures 3-4a through 3-4w. Table 3-3f provides the following information for inside locations:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 241 samples were collected from 169 locations ranging from 0 foot to 12 feet bgs for AOC 4. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry parameters
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): Samples from AOC 4 were not analyzed for a threat to groundwater because this Site is situated directly on bedrock, and the depth to groundwater is between approximately 130 feet and 200 feet bgs (based on average water table elevation of 456 feet amsl). (Figure 4-2b). Thus, AOC 4 does not represent a threat to groundwater.

Decision 4 (Offsite Migration Assessment): AOC 4 was split into two parts for the nature and extent evaluation: locations outside the fence line (AOC 4 – Outside) and locations inside the fence line (AOC 4 – Inside). The inside portion of the unit was assessed for offsite migration potential per DQO 4 for Part B units.

Concentrations in AOC 4 – Inside may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 4 – Inside between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results.

Results of shallow soil samples were screened against the relevant ISL for locations outside the TCS fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following equivalency factors:

- The following analytes were detected in one or more samples at concentrations exceeding ISLs:
  - Barium

  - Cadmium
  - CrVI
  - CrT
  - Cobalt
  - Copper
  - Lead
  - Molybdenum
  - Nickel
  - Thallium
  - Vanadium
  - Zinc

  The greatest FOE was for CrVI, which exceeded the ISL (BK) of 0.83 mg/kg at 2 of 46 locations, with a maximum concentration of 11 mg/kg at AOC4-P04.

- Calcium exceeded the ISL (BK) of 66,500 mg/kg at 1 of 2 locations, with a maximum concentration of 100,000 mg/kg at AOC4-37.
- B(a)P equivalent exceeded the ISL (RRSL) of 110 µg/kg at 6 of 48 locations, with a maximum concentration of 4,700,000 µg/kg at AOC4-tar.
- Dibenzofuran exceeded the ISL (RRSL) of 73,000 µg/kg at 1 of 5 locations, with a concentration of 130,000 µg/kg at AOC4-tar.
- Total PCBs exceeded the ISL (ECV) of 204 µg/kg at 13 of 50 locations, with a maximum concentration of 13,809 µg/kg at AOC4-28.
- TEQ avian exceeded the ISL (BK) of 16 ng/kg at 15 of 51 locations, with a maximum concentration of 470 ng/kg at AOC4-39.
- TEQ human exceeded the ISL (DTSC-SL) of 50 ng/kg at 8 of 51 locations, with a maximum concentration of 470 ng/kg at AOC4-39
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 25 of 51 locations, with a maximum concentration of 470 ng/kg at AOC4-39.

Table 3-39j summarizes the greatest exceedances and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within AOC 4 – Inside have the potential to migrate outside the fence line.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. One or more samples exceeded the ISLs for the following analytes and equivalency factors:

- The following analytes were detected in one or more samples at concentrations exceeding ISLs:
  - Barium
  - Cadmium
  - CrT
  - Cobalt
  - Copper
  - Nickel
  - Vanadium
- The greatest FOE was for copper, which exceeded the ISL (BK) of 16.8 mg/kg at 2 of 4 locations, with a maximum concentration of 54 mg/kg at AOC4-26.
- B(a)P equivalents exceeded the ISL (RRSL) of 110 µg/kg at 2 of 6 locations, with a maximum concentration of 1,100 µg/kg at AOC4-24.
- Total PCBs exceeded the ISL (ECV) of 204 µg/kg at 3 out of 6 locations, with a maximum concentration of 2,219 µg/kg at AOC4-24.

- TEQ avian exceeded the ISL (ECV) of 16 ng/kg at 3 of 5 locations, with a maximum concentration of 50 ng/kg at AOC4-24.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 3 of 5 locations, with a maximum concentration of 50 ng/kg at AOC4-24.

Potential migration of contamination at depth from AOC 4 may be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the TCS fence line to assess potential offsite migration, and the nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are insufficient to support CMS/FS and/or IMs. The following data gap was identified in the Soil RFI/RI Work Plan:

- Soil physical parameters to support the CMS/FS

No samples from AOC 4 were analyzed for soil characteristics during implementation of the RFI/RI Work Plan. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

4.1.3 AOC 9 – Southeast Fence Line

This section summarizes the data evaluation against DQOs for AOC 9 – Southeastern Fence Line.

4.1.3.1 Setting

AOC 9 is located in the southeastern portion of TCS east of the facility fence line and just south of the visitor parking lot, as shown on Figure 2-1 and Figures 4-3a through 4-3d. It is located entirely on PG&E-owned property. The original extent of AOC 9 consisted of a small area of discolored soil that had become exposed in 2000 due to erosion. A broken stormwater discharge pipe was located in the same area of the stained soil, and information from former employees indicated that the pipe trench leading to the storm drain may have received runoff from leaks originating near the Auxiliary Building.

Figure 4-3a shows the approximate locations of the stormwater drainpipe and the April 2000 excavation. These locations are based on historical employee interviews, Site walk observations of a depression in the excavation area where backfill had settled, and the April 2000 excavation letter report (PG&E 2000a). However, subsequent employee interviews revealed a possible alternate location for this storm drainpipe located further south of the original location. This alternate location of the storm drainpipe is also shown on Figure 4-3a.

4.1.3.2 Unit History

The broken stormwater drainpipe received runoff from the TCS. The drain may have also captured incidental leaks or spills from the TCS, including water from auxiliary jacket water system.

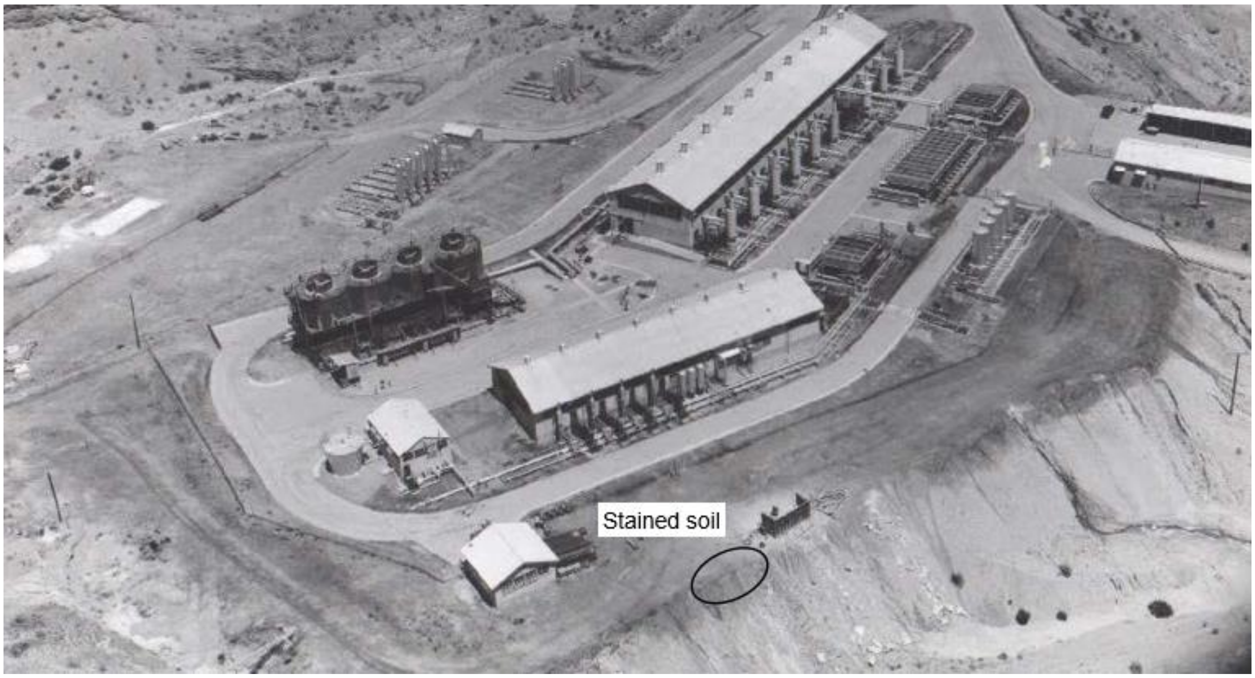
In the same area as the approximate location of the broken stormwater drainpipe, dark soil—what appears to be stained soil—is present along the western side of AOC 9 in a May 19, 1955, aerial photograph. This area is shown on Figure 4-3a and Photograph 4.1.3-1. This is a secondary source of contamination, likely a result of using oil for dust suppression.

The drain was in use until 2000, when a new stormwater drainpipe was installed. Discharge of TCS runoff through the broken stormwater drainpipe would have continued until 2000.

While the actual depth of the pipe break is not known with certainty, based on similar Site facilities and the limitations of the steep slope at this location, it is expected to have been between 1 foot to 3 feet bgs.

On April 6, 2000, approximately 1.5 yd^3 of the stained soil were excavated and shipped offsite for disposal. Figure 4-3a shows the approximate location and size of the excavation. After most of the stained soil was removed, a new stormwater drainage pipe was installed, and the area was backfilled with 1 foot to 2 feet of clean soil to prevent erosion of the slope. Sampling was conducted after most of the stained soil had been removed (PG&E 2000a). Because of the extremely steep slope at AOC 9, removal of additional soil was not feasible at the time.

The AOC 9 boundary was enlarged to include additional sampling locations in response to DTSC comments on the Draft RCRA Facility Investigation/Remedial Investigation Soil Investigation Work Plan, Part A, PG&E Topock Compressor Station, Needles, California, referred to as the Soil Part A Work Plan (CH2M 2006).



Photograph 4.1.3-1: May 19, 1955, Aerial Photograph 2, AOC 9.
Note: Facing northwest. Dark (stained) soil is visible along the ridge in what is now the western side of AOC 9.

4.1.3.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 9 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

Soil in the AOC 9 investigation area predominantly comprises a relatively homogeneous unit of silty sand with gravel, with approximately 30% gravel ranging from 0.25 inch to 2 inches in diameter, 50% fine to coarse sand, and 20% silt. Lithology was recorded to a maximum depth of 10 feet bgs at AOC 9. Figures 4-3b through 4-3d are cross sections showing lithology for AOC 9.

Descriptions of staining and debris observed in samples collected at AOC 9, and associated contamination, are as follows:

- Rubber tires were encountered in the AOC9-18 boring. At AOC9-18, the following analytes exceeded their respective ISLs between 5 feet and 10 feet bgs:
  - CrVI
  - Copper
  - Lead

  - Mercury
  - B(a)P equivalent
  - Dioxins and furans TEQ mammal
  - Dioxins and furans TEQ avian
  - Dioxins and furans TEQ human

- In boring AOC9-22, an approximately 1-inch-thick layer of white powder was observed at 2.5 feet bgs. In the sample collected from 2.5 feet to 2.6 feet bgs at AOC9-22, CrVI, CrT, and nickel exceeded their respective ISLs.

4.1.3.4 Analytical Results

Appendix B summarizes general field and sample collection methods. Tables 3-5a through 3-5j provides the analytical results for AOC 9, and Figures 3-5a through 3-5n show the sampling locations.

This section provides a discussion about the screening level exceedances. Section 4.1.3.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Samples were collected from 33 locations at depths ranging from 0 foot to 15 feet bgs, with most samples collected from the surface to 3 feet bgs. The ISLs were exceeded for one or more of the following metals at locations across AOC 9:

- Arsenic (BK)
- CrVI (BK)
- CrT (BK)
- Cobalt (BK)
- Copper (ECV)
- Lead (BK)
- Mercury (ECV)
- Molybdenum (ECV)
- Nickel (BK)
- Thallium (RRSL)
- Zinc (BK)

The most frequently detected analytes exceeding the ISLs were as follows (Table 3-5a and Figures 3-5a through 3-5f):

- CrVI
- CrT
- Copper
- Lead
- Mercury
- Zinc

The greatest concentrations of CrVI, CrT, copper, and relatively high concentrations of zinc were detected in confirmation samples collected from 0 foot to 3 feet bgs after the 2000 excavation. These locations were later covered with 1 foot to 2 feet of clean fill; therefore, they do not represent true surface conditions at the Site. Exceedances are summarized as follows:

- CrVI was detected exceeding its ISL (0.83 mg/kg) in 18 soil samples taken from depths between 0 foot and 10 feet bgs (Table 3-5a). The greatest CrVI concentration of 114 mg/kg was detected at sample location #10 at the surface to 3 feet bgs. Sample location #10 was collected in the former removal area at the top of the slope near the TCS fence line (Figure 3-5a) and was later covered with 1 foot to 2 feet of clean fill.

- CrT was detected exceeding its ISL (39.8 mg/kg) in 14 soil samples taken from depths between 0 foot and 6 feet bgs. The greatest CrT concentration of 398 mg/kg was detected at sample location #10 at the surface to 3 feet bgs. Sample location #10 was collected in the former removal area at the top of the slope near the TCS fence line and was later covered with 1 foot to 2 feet of clean fill.
- Copper was detected exceeding its ISL (16.8 mg/kg) in 16 soil samples taken from depths between of 0 foot and 6 feet bgs. The greatest copper concentration of 50.4 mg/kg was detected at sample location #9 at the surface to 3 feet bgs. Sample location #9 was collected in the former removal area at the top of the slope near the TCS fence line and was later covered with 1 foot to 2 feet of clean fill.
- Lead was detected exceeding its ISL (8.39 mg/kg) in 30 soil samples taken from depths between 0 foot and 10 feet bgs. The greatest lead concentration of 59 mg/kg was detected at sample location AOC9-8 at 2.5 feet to 3 feet bgs. Sample location AOC9-8 was collected in the former removal area at the top of the slope near the TCS fence line.
- Mercury was detected exceeding its ISL (0.0125 mg/kg) in 14 samples taken from depths between 0 foot and 10 feet bgs. The greatest mercury concentration of 0.75 mg/kg was detected at sample location AOC9-18 at 9 feet to 10 feet bgs. Sample location AOC9-18 was collected at the top of the slope near the TCS fence line to the southeast of the former removal area.
- Zinc was detected exceeding its ISL (58 mg/kg) in 20 soil samples taken from depths between 0 foot and 3 feet bgs. Of these 20 samples, 8 were collected from locations later covered with 1 foot to 2 feet of clean fill; therefore, they do not represent true surface conditions. The greatest zinc concentration of 1,000 mg/kg was detected at sample location AOC9-8 at the surface to 0.5 foot bgs. Sample location AOC9-8 was collected in the former removal area at the top of the slope near the TCS fence line.

The lateral extents of exceedances have generally been defined by samples with results less than ISLs, not detected greater than reporting limits, or by topographical features. There are several locations that have detected metals results slightly exceeding (up to 2 times) their respective ISLs. These locations were screened against RBRGs and RBCs and were not found to exceed these SLs. Although the lateral extent of metals exceedances is not defined to the ISLs, the exceedances do not present an unacceptable risk to receptors. Therefore, the lateral extent of metals is not considered a data gap that requires filling.

The vertical extent of the exceedances has been defined for most metals by samples with results less than ISLs, or not detected greater than reporting limits, as shown in Table 3-5a. Although there are locations where the deepest samples exceeded ISLs, this does not represent a data gap requiring further investigation because nearby samples define vertical extent, or the concentrations exceeding the ISLs are decreasing with depth. Numerous additional deeper borings would need to be installed to define the vertical extent to the ISL values. Additional borings were not proposed to limit disturbances. Due to the steep slope of AOC 9, deeper samples can only be reached using an excavator, as a drill rig is unable to access the AOC 9 area.

The vertical extent has not been defined for lead, zinc, or mercury, or nickel at several locations. These metals were further screened against RBCs, and the results were as follows:

- Lead concentrations in the deepest samples do not exceed RBCs at any location; however, concentrations increase with depth at the following locations:
  - AOC9-3
  - AOC9-7
  - AOC9-15
  - AOC9-18
- Zinc concentrations at AOC9-3 or AOC9-10 do not exceed RBCs in the deepest samples; however, concentrations increase with depth.

- The mercury concentration in the deepest AOC9-18 sample (9-10 feet bgs) exceeded the ISL by a factor of 60; however, the concentration in the deepest sample does not exceed RBCs.
- Nickel concentrations at AOC9-12 and AOC9-21 exceed the ISL and increase with depth. The ecological RBC for nickel is less than the ISL; therefore, the RBC is not used for comparison.

Deeper samples would be difficult to collect in these areas because of the steep slope and would cause substantial disturbance. Additionally, except for nickel, the concentrations in the deepest samples do not exceed RBCs and do not pose an unacceptable risk to receptors. However, because there are several locations where concentrations increase with depth, AOC 9 is recommended to be considered for inclusion in the CMS/FS. Several locations are included in the NTCRA.

Two additional samples were collected from AOC 9 during groundwater remedy construction (AOC9_10-GRBS-52 and AOC9_10-GRBS-52-BOT) (Appendix F, Table F-1a). There was a minor exceedance of the ISL for lead (8.39 mg/kg) at AOC9_10-GRBS-52 (8.4 mg/kg).

CLP Inorganics: Samples were collected from 4 locations at depths ranging from 0 foot to 0.5 foot bgs. No samples had detected results that exceeded their respective ISLs, as shown in Table 3-5b. One additional sample was collected from AOC 9 during groundwater remedy construction (AOC9_10-GRBS-52) (Appendix F, Table F-1b). There were no exceedances of ISLs.

PAHs: Samples were collected from 23 locations at depths ranging from 0 foot to 10 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. The ISLs for B(a)P equivalent (RRSL) and HMW PAHs (ECV) were exceeded at one or more of the following locations (Table 3-5c and Figures 3-5g and 3-5h):

- AOC9-5
- AOC9-6
- AOC9-15
- AOC9-18
- AOC9-20
- AOC9-22

Exceedances are summarized as follows:

- B(a)P equivalent exceeded the ISL (110 µg/kg) in 10 samples taken from depths between 0 foot and 5 feet bgs. The greatest B(a)P equivalent concentration of 980 µg/kg was detected at sample location AOC9-22 at 2 feet to 3 feet bgs. Sample location AOC9-22 is located in a depression basin located to the south of AOC 9, across an access road. Runoff from AOC 9 may have collected in this depression.
- HMW PAHs exceeded the ISL (1,160 µg/kg) in 5 samples taken from depths between 0 foot and 5 feet bgs. The greatest HMW PAH concentration of 7,840 µg/kg was detected at sample location AOC9-22 at 2 feet to 3 feet bgs. Sample location AOC9-22 is located in a depression basin located to the south of AOC 9, across an access road.

The lateral extents of exceedances have been defined by samples with results less than ISLs, not detected greater than reporting limits, or topographical features.

The vertical extent of the exceedances has not been defined to the ISL for B(a)P equivalents and HMW PAHs for samples AOC9-15, AOC9-18, and AOC9-22. B(a)P equivalent concentrations are less than RBCs at all three locations, but concentrations increase with depth at AOC9-18 and AOC9-20. HMW PAHs in the deepest sample at AOC9-22 exceed the lowest wildlife ecological RBC (5,800 µg/kg). Deeper samples were not feasible at AOC9-15, AOC9-18, and AOC9-22 because the borings had reached the depth limit of vacuum or hand sampling. Rotosonic drilling was not feasible at these locations due to the steep slope or access issues. Because there are several locations where concentrations increase with depth and one location exceeds an RBC, AOC 9 is recommended to be considered for inclusion in the CMS/FS.

Two additional samples were collected from AOC 9 during groundwater remedy construction (AOC9_10-GRBS-52 and AOC9_10-GRBS-52-BOT) (Appendix F, Table F-1c). There were no exceedances of ISLs.

TPH: Samples were collected from 16 locations at depths ranging from 0 foot to 3 feet bgs. No samples had detected results that exceeded their respective ISLs, as seen in Table 3-5d.

General Chemistry: Samples were collected from 22 locations at depths ranging from 0 foot to 6 feet bgs (Table 3-5e). There are no ISLs for general chemistry parameters.

Pesticides: Samples were collected from 8 locations at depths ranging from 0 foot to 10 feet bgs. The ISL for 4,4-DDE (ECV) was exceeded at 1 location, as shown on Table 3-5f.

4,4-DDE was detected at about its ISL (2.1 µg/kg) at AOC9-11 from 0 foot to 0.5 foot bgs. Sample location AOC9-11 was collected in the former removal area near the bottom of the slope.

The lateral extent of exceedance has been defined by samples with results less than ISLs or not detected greater than reporting limits. The vertical extent of exceedance has been defined by samples with results less than ISLs or not detected greater than reporting limits. Although the deepest sample collected at AOC9-11 had a detected result of 4,4-DDE exceeding the ISL in the 0 foot to 0.5 foot bgs sample, nearby locations downgradient of AOC9-11 had deeper samples with no detections of 4,4-DDE.

4,4-DDE is the daughter product of 4,4-DDT. A Sitewide evaluation of pesticides was conducted as part of the Soil RFI/RI Work Plan (CH2M 2013a) to assess potential patterns of pesticides that were used for pest control at the TCS. After review of pesticides and other compounds detected in the soils samples where pesticides were detected, there does not appear to be a discernable pattern or correlation between the other compounds detected at these locations and the detected pesticides (CH2M 2013a). Based on this evaluation, pesticides were not defined as a new COPC or COPEC at AOC 9, and further evaluation of pesticides is not warranted. Therefore, this does not represent a data gap requiring further investigation.

Two additional samples were collected from AOC 9 during groundwater remedy construction (AOC9_10-GRBS-52 and AOC9_10-GRBS-52-BOT) (Appendix F, Table F-1f). There were no detections of pesticides.

PCBs: Samples were collected from 12 locations at depths ranging from 0 foot to 10 feet bgs. PCBs were evaluated as individual Aroclors and as total PCBs. The ISLs for Aroclor 1254 (RRSL), Aroclor 1260 (RRSL), and total PCBs (ECV) were exceeded at one or more of the following locations (Table 3-5g and Figures 3-5i to 3-5k):

- AOC9-15
- AOC9-16
- AOC9-22

Exceedances are summarized as follows:

- Aroclor 1254 was detected exceeding its ISL (240 µg/kg) in 5 samples taken from depths between 0 foot and 3 feet bgs. The greatest Aroclor 1254 concentration of 1,400 µg/kg was detected at sample location AOC9-22 at 2 feet to 3 feet bgs. Sample location AOC9-22 is located in a depression basin located to the south of AOC 9, across an access road.
- Aroclor 1260 was detected exceeding its ISL (240 µg/kg) in 4 samples taken from depths between 0 foot and 3 feet bgs. The greatest Aroclor 1260 concentration of 930 µg/kg was detected at sample location AOC9-22 at 2 feet to 3 feet bgs. Sample location AOC9-22 is located in a depression basin located to the south of AOC 9, across an access road.
- Total PCBs were detected exceeding the ISL (204 µg/kg) in 5 samples taken from depths between 0 foot and 3 feet bgs. The greatest total PCBs concentration of 2,330 µg/kg was detected at sample

location AOC9-22 at 2 feet to 3 feet bgs. Sample location AOC9-22 is located in a depression basin located to the south of AOC 9, across an access road.

The lateral extent of exceedances has been defined by samples with results less than RRSL/ECV, not detected greater than reporting limits, or topographical features.

The vertical extent of exceedance has not been defined for sample AOC9-15. Deeper samples were not feasible at AOC9-15, where Aroclor 1254, Aroclor 1260, and total PCBs exceeded their respective screening levels in the deepest samples. The RBC for total PCBs was not exceeded at AOC9-15; however, because PCB concentrations slightly increased with depth. AOC 9 is recommended to be considered for inclusion in the CMS/FS.

Two additional samples were collected from AOC 9 during groundwater remedy construction (AOC9_10-GRBS-52 and AOC9_10-GRBS-52-BOT) (Appendix F, Table F-1g). There were no exceedances of ISLs

Dioxins and Furans: Samples were collected from 10 locations at depths ranging from 0 foot to 6 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ avian (ECV), TEQ human (RRSL), and TEQ mammals (ECV) were exceeded at one or more of the following locations (Table 3-5h and Figures 3-5l to 3-5n):

- AOC9-8
- AOC9-15
- AOC9-16
- AOC9-18
- AOC9-20
- AOC9-21
- AOC9-22
- PA-23

Exceedances are summarized as follows:

- TEQ avian samples were detected exceeding its ISL (16 ng/kg) in 10 samples taken from depths between 0 foot and 6 feet bgs. The greatest TEQ avian concentration of 95 ng/kg was detected at sample location AOC9-15 at 2 feet to 3 feet bgs. Location AOC9-15 is located in a depression basin located to the south of AOC 9, across an access road.
- TEQ human samples were detected exceeding its ISL (50 ng/kg) in 7 samples taken from depths between 0 foot and 6 feet bgs. The greatest TEQ human concentration of 190 ng/kg was detected at sample location AOC9-16 at the surface to 0.5 foot bgs. AOC9-16 is located below the former removal area, at the bottom of the slope along the access road.
- TEQ mammal samples were detected exceeding its ISL (5.58 ng/kg) in 17 samples taken from depths between 0 foot and 6 feet bgs. The greatest TEQ mammal concentration of 190 ng/kg was detected at sample location AO9-16 at the surface to 0.5 foot bgs. AOC9-16 is located below the former removal area, at the bottom of the slope along the access road.

The lateral extent of ISL exceedances has not been defined for the TEQ values for avian or human receptors. TEQ values for avian receptors exceed the ISL by more than a factor of 2 near the TCS fence line, near the southern boundary of AOC 9, and downgradient of AOC 9 (AOC9-15 and -16). ISL exceedances for human receptors show a similar pattern and TEQ human concentrations in the surface samples at AOC9-16 and AOC9-21 also exceed the RBRG of 100 ng/kg.

The vertical extent of ISL exceedances has not been defined for TEQ values for avian and human receptors at locations AOC9-15 and AOC9-18. The TEQ human concentration at AOC9-15 exceeds the TEQ human RBRG of 100 ng/kg in the deepest sample (2 feet to 3 feet bgs). The TEQ human concentration at AOC9-18 does not exceed the Site-specific TEQ Human RBRG. Deeper samples were not feasible at AOC9-15 and AOC9-18. Because of the lateral and vertical extent data gaps for dioxin and furans, and exceedances of RBRGs, AOC 9 is recommended to be considered for inclusion in the CMS/FS.

The lateral and vertical extents of the TEQ mammal exceedances have not been defined by samples with results less than ISLs or not detected greater than reporting limits. These exceedances of the ISLs do not represent a data gap requiring further investigation because the TEQ mammal ISL (5.58 ng/kg) is the most conservative and lowest screening level for dioxin TEQ. The Site-specific ecological RBRG for TEQ mammals developed based on the desert shrew ranges from 190 to 360 ng/kg. No dioxin or furan results exceed 190 ng/kg; therefore, they do not present an unacceptable risk to mammals. Further investigation to assess the vertical extent of TEQ mammal is not warranted.

Two additional samples were collected from AOC 9 during groundwater remedy construction (AOC9_10-GRBS-52 and AOC9_10-GRBS-52-BOT) (Appendix F, Table F-1c). There were no exceedances of TEQ avian or human ISLs.

Asbestos: A small area of surficial white powder material was observed in AOC 9 in the immediate vicinity of AOC9-14. White powder material was encountered only in this one location and only in the surface sample. The white powder sample and the underlying soil sample were analyzed for asbestos. Bulk samples analyzed by polarized light microscopy indicated that asbestos fibers were present in both samples. To confirm the presence of asbestos fibers, the white powder sample was also analyzed by California Air Resource Board Method 435 and transmission electron microscopy. California Air Resource Board Method 435 did indicate that very low levels of asbestos were present in the soil sample (detected concentration of less than 0.1%, where the detection limit was less than 0.1%); however, the transmission electron microscopy analysis indicated that asbestos was not detected greater than the detection limit. Based on these results, a very small percentage of asbestos fibers (less than 0.1%) is present in the white powder and soil samples.

The lateral and vertical extent of exceedances have been defined by the white powder only being located at a single location.

4.1.3.5 AOC 9 Conceptual Site Model

Figures 4-3a through 4-3d are a graphical CSM and cross section developed for AOC 9 based on the Site history and background. Exhibit 4-7 presents the following information for AOC 9:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part A DQOs TM (CH2M 2010) and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary source of contamination at AOC 9 is historical liquid discharge of runoff from the TCS from a broken storm drainpipe to shallow soil. The presence of CrVI and CrT at AOC 9 is likely related to the release of AJCW, while the presence of wear metals (zinc, copper, and lead), PAHs, and PCBs is likely related to TCS runoff or incidental leaks or spills. A pre-1995 release of mercury in the northern side of the Auxiliary Building (CH2M 2007a) may be the source of mercury detected at AOC 9. The primary source of dioxins and furans at the Site are residuals from apparent historical burning of TCS waste.

Exhibit 4-7. Conceptual Site Model – Area of Concern 9
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Runoff from TCS; incidental spills and releases **COPCs include:** • Metals • PCBs • PAHs • Dioxins and furans	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[a]	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals
Discharge from TCS from the broken stormwater or trench drainpipe **COPCs include:** • Metals	• Shallow soil	• Percolation or infiltration	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil Potential volatilization and atmospheric dispersion and enclosed space accumulation[a]	

[a] Enclosed space accumulation refers to any area where vapor can accumulate.

The greatest concentrations of CrT, CrVI, copper, and zinc were detected in the area identified as the approximate location of the broken storm drainpipe, consistent with the broken storm drainpipe being the source of these contaminants. The greatest concentrations of PAHs and PCBs were detected in the depressions across the access road downgradient of AOC 9. PAHs and PCBs likely accumulated in these two low-lying areas from overland flow down the access road or from the TCS. COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 9, this migration may result in COPCs at the top of the hillside migrating down the hillside, across the access road and into depressions, and continuing down the flow path of East Ravine.

The stormwater drainpipe break was estimated to be between 1 foot to 3 feet bgs. The quantity of liquid released is expected to be relatively small because, with the exception of storm events, the drain would have only captured small, incidental leaks or spills from various systems at the TCS.

The primary source media at AOC 9 are surface and shallow soils. Liquids released to these areas could have infiltrated to deeper soils or flowed downhill in surface or shallow subsurface runoff. These flows would have entered depressions across the access road from AOC 9 or East Ravine (AOC 10). Because of the steep angle of the slope at AOC 9, infiltration is likely to be a lesser pathway than surface runoff; however, based on sampling data, COPCs in residual contamination in the area of the former broken stormwater discharge pipe appear to have migrated to deeper soils.

For AOC 9, a potential secondary release pathway is windblown dust contamination, which could have occurred as a result of dust being transported from the AOC. Windblown contamination, if any, would be limited to surface soils.

4.1.3.6 Evaluation of Data Against Data Quality Objectives for AOC 9

This section discusses the evaluation of data against DQOs for AOC 9.

Decision 1 (Nature and Extent Determination): Nature and extent have not been sufficiently defined laterally or vertically for the following compounds and associated areas:

- Vertical extent has not been defined within AOC 9 for the following areas for the listed analytes:
  - Mercury (AOC9-18)
  - Lead (AOC9-3, AOC9-7, AOC9-15, and AOC9-18)
  - Zinc (AOC9-3, AOC9-10)
  - Nickel (AOC9-12, AOC9-21)
- Vertical extent of PAHs has not been defined within AOC 9 (AOC9-18) and in depression areas across the access road from AOC 9 (AOC9-15, AOC9-22).
- Vertical extent of PCBs has not been defined in depression areas across the access road from AOC 9 (AOC9-15).
- Vertical and lateral extent of dioxins and furans has not been defined within AOC 9 and in depression areas across the access road from AOC 9.

Areas and sample locations in AOC 9 with data gaps shall be considered for inclusion in the CMS/FS. A portion of AOC 9 is an NTCRA target action area. AOC 9 data will be reevaluated after the NTCRA is complete.

Tables 3-5a through 3-5i and Figures 3-5a through 3-5n present the analytical results. Table 3-5j provides the following information:

- A summary of the frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value.

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 69 samples were collected from 33 locations ranging from 0 foot to 15 feet bgs for AOC 9. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- General chemistry parameters
- Pesticides
- PCBs
- Asbestos

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and/or IMs. A data gap was identified in the Soil RFI/RI Work Plan (CH2M 2013a): soil physical parameters to support the CMS/FS. During implementation of the RFI/RI Work Plan, soil characteristics samples were collected at the following locations in AOC 9: AOC9-16 and AOC9-19. Table 3-37 presents the results. These data addressed the data gap identified in the Soil RFI/RI Work Plan (CH2M 2013a) and, along with the nature and extent data collected, are sufficient to support CMS/FS and/or IMs.

4.1.4 AOC 10 – East Ravine

This section summarizes the data evaluation against DQOs for AOC 10 – East Ravine.

4.1.4.1 Setting

AOC 10 – East Ravine is a small ravine located on the southeastern side of the TCS, as shown on Figure 2-1 and Figures 4-4a through 4-4e. The ravine runs eastward toward the Colorado River. Portions of the East Ravine are on PG&E property outside the TCS fence line, and other portions of the ravine are located on property owned by HNWR. AOC 10 is divided into four subareas (Figure 2-1):

- AOC 10a
- AOC 10b
- AOC 10c
- AOC 10d

The East Ravine is approximately 1,600 feet long and is bisected by three constructed berms (one constructed berm and two dirt roads that are also constructed berms) (Figures 4-4a and 4-4b). Based on review of historical photographs, the constructed berm at AOC 10c was built sometime between 1953 and 1961, the Southern California Gas Pipeline Road was built in the late 1950s or early 1960s, and the lower dirt road was built in 1916 and is associated with the old Route 66. The lower dirt road is the only berm that contains a culvert. Because of the berms, surface flow from most of the length of this ravine (west of the lower dirt road that forms the eastern boundary of Subarea AOC 10d) does not typically reach the Colorado River. The drainage for this ravine includes runoff from the TCS access road; however, a curb was installed along the access road in 2006, preventing station runoff from entering the ravine, runoff from the mountains to the south, and runoff from the TCS itself.

4.1.4.2 Unit History

The primary potential sources of contamination to the East Ravine include the following:

- Runoff from the TCS, the access road to the TCS, and AOC 9
- Discharge from stormwater drainpipes
- Incidental overflows of chromium-containing hotwell (AOC 19) cooling water from the former trench drain at the top of the TCS access road
- Debris disposed of on the slopes of the ravine

Findings during NTCRA removal activities within East Ravine indicate discharges of waste material to East Ravine occurred. White layers of material, assumed to be water softener sludge, were encountered within the ravine bottom from Subarea AOC 10b to AOC 10d, indicating some releases likely occurred before the berm at AOC10c was built. Interbedded white and greenish layers of impacted soil of varying thickness were encountered in soil at depths of 2 feet to 4 feet bgs within Subarea AOC 10c, behind the berm, indicating there was likely repeated discharge of waste materials that also occurred after berm construction. Discharge to East Ravine appears to emanate from a drainpipe on the eastern side of the TCS, as shown on Photograph 4.1.4-1, a 1965 aerial photograph. White powder was observed at shallow depth south of the line of fluid discharge, shown on Photograph 4.1.4-1, on both sides of the access road.

During a Site visit in May 2006, a storm drain was noted leading from the southeastern portion of the TCS and discharging into the East Ravine. A small area (Subarea 10a), approximately 3 feet by 3 feet, of stained soil (possibly old hydrocarbon staining) was noted at the discharge of the storm drain. While discharge from the steam cleaning area has always been directed to the oily water treatment system, this storm drain may have captured some runoff from the steam-cleaning area before the steam-cleaning area was fully bermed (CH2M 2006).

Three additional subareas (Subareas 10b, 10c, and 10d) where water and soil collect (either within lower-lying areas along the ravine course or behind berms) have been identified within the East Ravine and are shown on Figure 4-4a. Subarea 10b, a natural drainage depression in the upper portion of the ravine, is located in a flat area of the ravine. These three subareas are downstream from Subarea 10a.

In 2008, during a Site walk, DTSC observed a layer of white powder material on the floor of the wash in three locations between Subareas 10c and 10d and collected samples from this area (sample locations DTSC-AOC10d-1 through DTSC-AOC10d-3). The powder was approximately 1 inch wide, 15 inches to a few feet long, and 0.25 inch thick. Because the white powder was similar in appearance to the white powder in Bat Cave Wash and at the Railroad Debris Site, DTSC assumed it was PG&E's historical water-softener sludge. Samples collected from the powder indicated it contains elevated concentrations of the following analytes:

- Calcium
- Chromium
- Copper
- Magnesium
- Sodium
- Zinc

In 2009, in response to DTSC's request in the conditional approval of the Soil Part A Work Plan (CH2M 2006), PG&E mapped white powder and debris in the East Ravine. Miscellaneous debris consisted of the following items:

- Pieces of metal
- Cans
- Tires

- Concrete rubble
- Tiles
- Bricks

Furthermore, after a January 2010 storm event, three additional white areas were discovered on the northern face of the East Ravine. Per DTSC's request, these three white areas are included in this data summary.

In January 2011, additional historical aerial photographs of the TCS were located and provided to DTSC. One photo (circa 1965) indicated runoff of fluids from the station into East Ravine (Photograph 4.1.4-1). Runoff can be seen originating from a point upslope of Subarea 10a and flowing into East Ravine, and water appears to be impounded in Subarea 10c. Liquid also appears to be present in Subarea 10c in aerial photographs as follows:

- 1961 (Photograph 4.1.4-2, Figure A-9)
- 1962 (Photograph 4.1.4-3, Figure A-10)
- 1964 (Photograph 4.1.4-4, Figure A-11)
- 1967 (Photographs 4.1.4-5 and -6, Figures A-13 and -14)
- 1969 (Photograph 4.1.4-7, Figure A-15)

Although historical aerial photographs show liquid impounded in East Ravine in the 1960s, PG&E has found no evidence that operations-related discharge to East Ravine from the TCS was a standard practice based on review of available engineering diagrams and discussions with current and former employees. Incidental releases from the JCW hotwell (AOC 19) have been documented, and releases were discharged to East Ravine.

Fire suppression water (fresh water) is also known to have been released to East Ravine during testing of the fire suppression system. The fire suppression system is currently tested weekly and annually. During the weekly tests, approximately 300 gallons of freshwater is released. During the annual test, approximately 10,000 gallons of freshwater is released at an average flow rate of 500 gallons per minute (gpm).

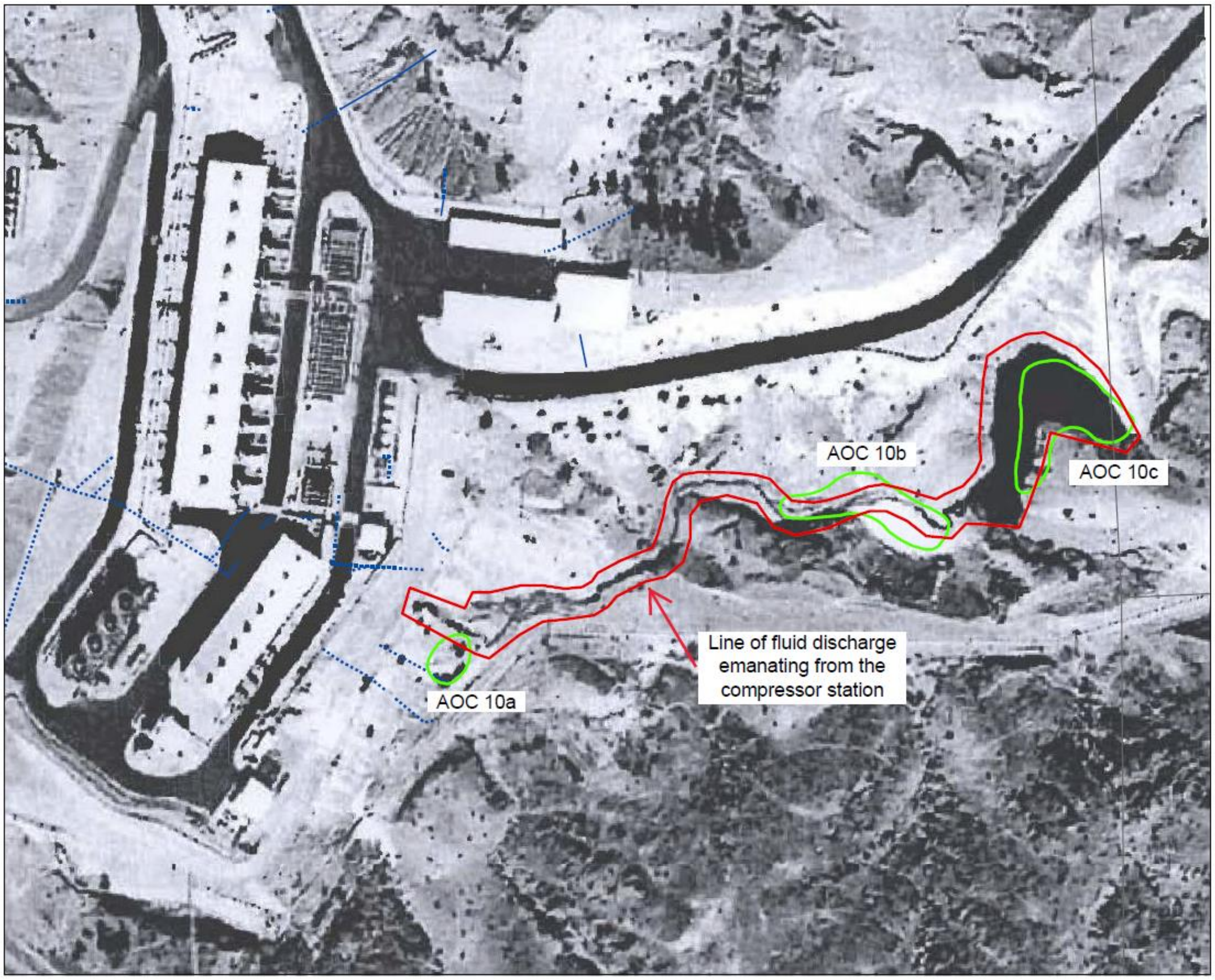
Rainwater also impounds in Subarea 10c and has been observed by station employees to remain impounded in Subarea 10c for more than a month after a rain event. These documented releases (JCW, fire suppression system testing, and rainwater) are unlikely to provide enough water to completely fill the impoundment in East Ravine, as is seen on photographs from the 1960s. Along with the amount of contamination discovered in East Ravine during the NTCRA, it is reasonable to assume that liquid waste discharge occurred to East Ravine during the 1960s. The source and operation practices that would have regularly discharged liquid waste to East Ravine are unknown.

A review of historical rainfall data was conducted to determine whether the liquid that appears to be present in Subarea 10c on aerial photos could be related to rainfall impoundment (NOAA 2022):

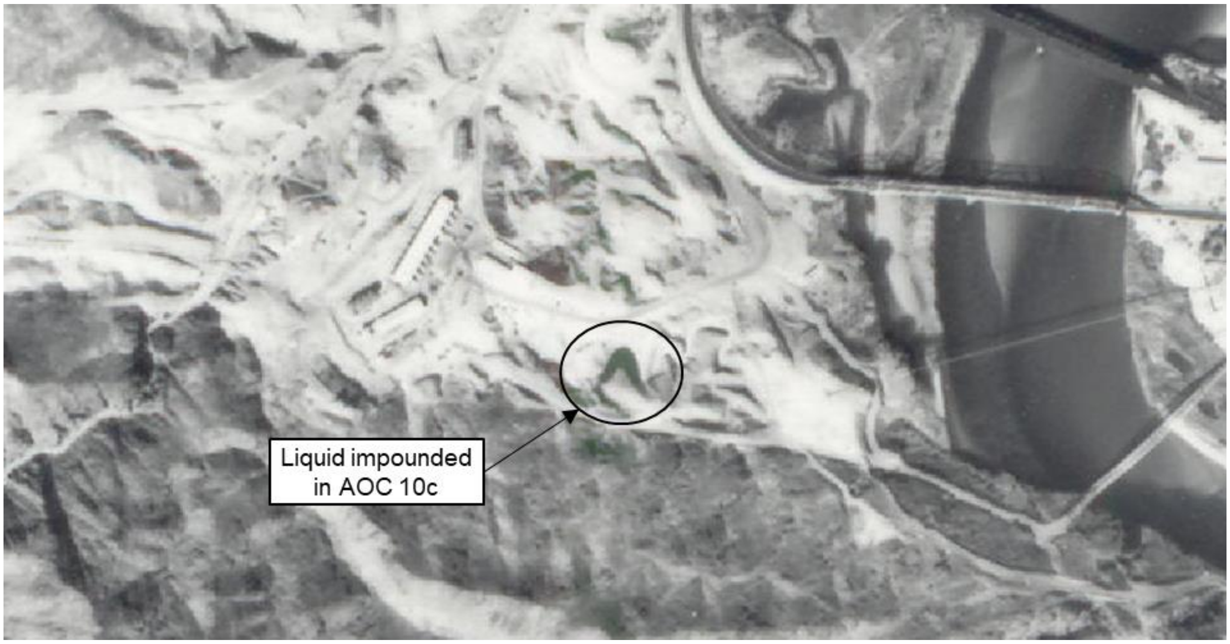
- Rainfall of 0.38 inch was recorded October 31, 1961 for the Needles area, 4 days before the photo taken on November 4, 1961 (Figure A-9).
- Rainfall of 0.12 inch was recorded for the Needles area on April 28, 1964, 20 days before the photo taken May 18, 1964 (Figure A-11).
- Rainfall of 0.01 inch was recorded in the month before the photo taken May 22, 1967 (Figure A-13).
- In addition to 0.01 inch in the month before the photo taken May 22, 1967, rainfall of 0.3 inch was recorded April 11, 1967, 41 days before the date of Figure A-13.

Rainfall may have contributed to the impounded water, but not likely enough water to completely fill the 10c impoundment.

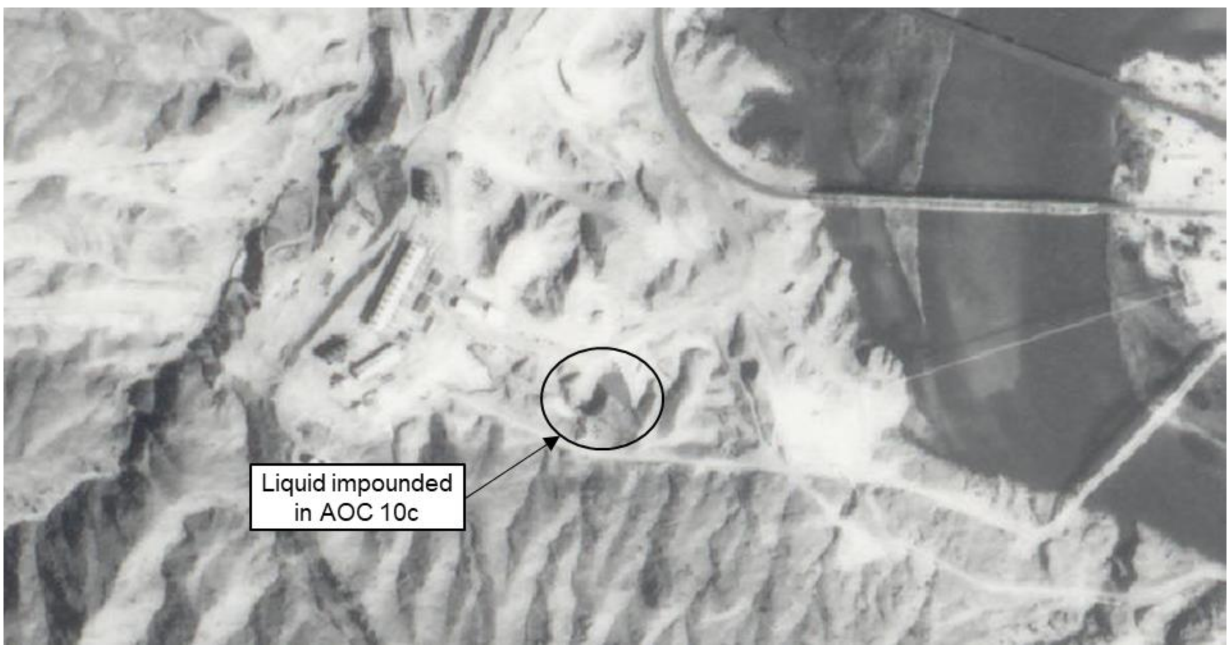
Per direction from DTSC, soil samples collected at AOC 10 as part of the 2015 through 2016 sampling effort included locations along this apparent line of runoff. Porewater and sediment sampling along the western shore of the Colorado River in the vicinity of the East Ravine was also conducted in RTC from the DTSC and DOI on Soil Part A Work Plan (CH2M 2006).



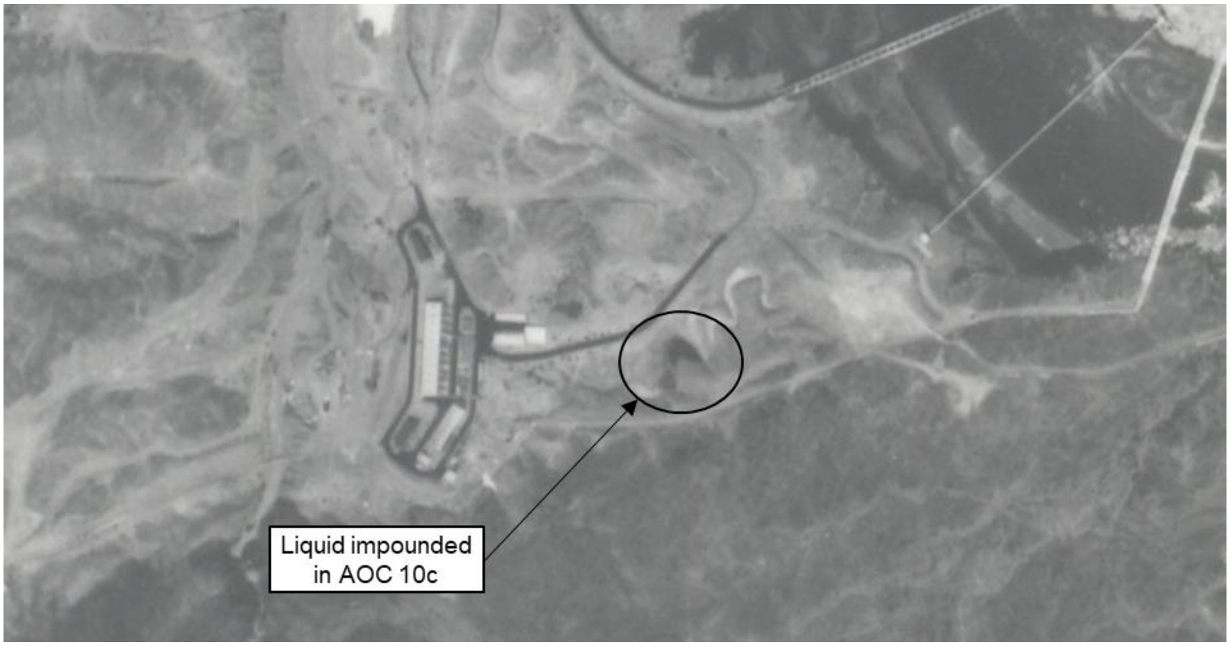
Photograph 4.1.4-1: Historical Aerial Photograph Circa 1965 Showing Fluid Discharge from the Topock Compressor Station to AOC 10



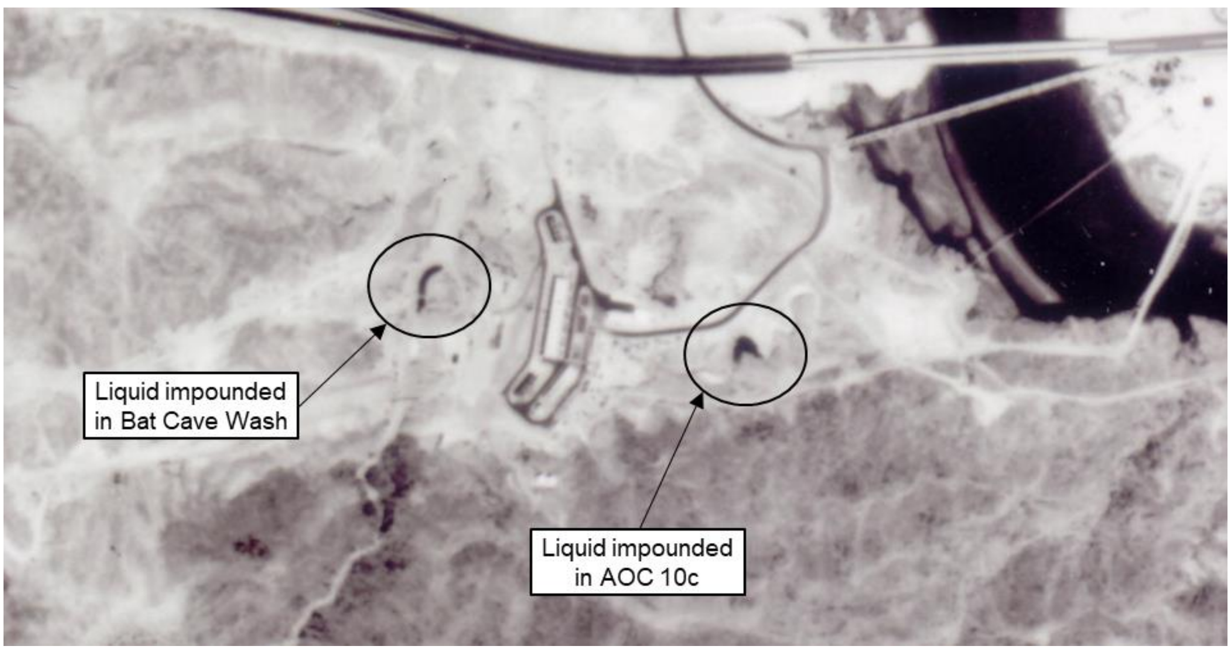
Photograph 4.1.4-2: November 4, 1961, Aerial Photograph Showing Liquid in AOC 10c



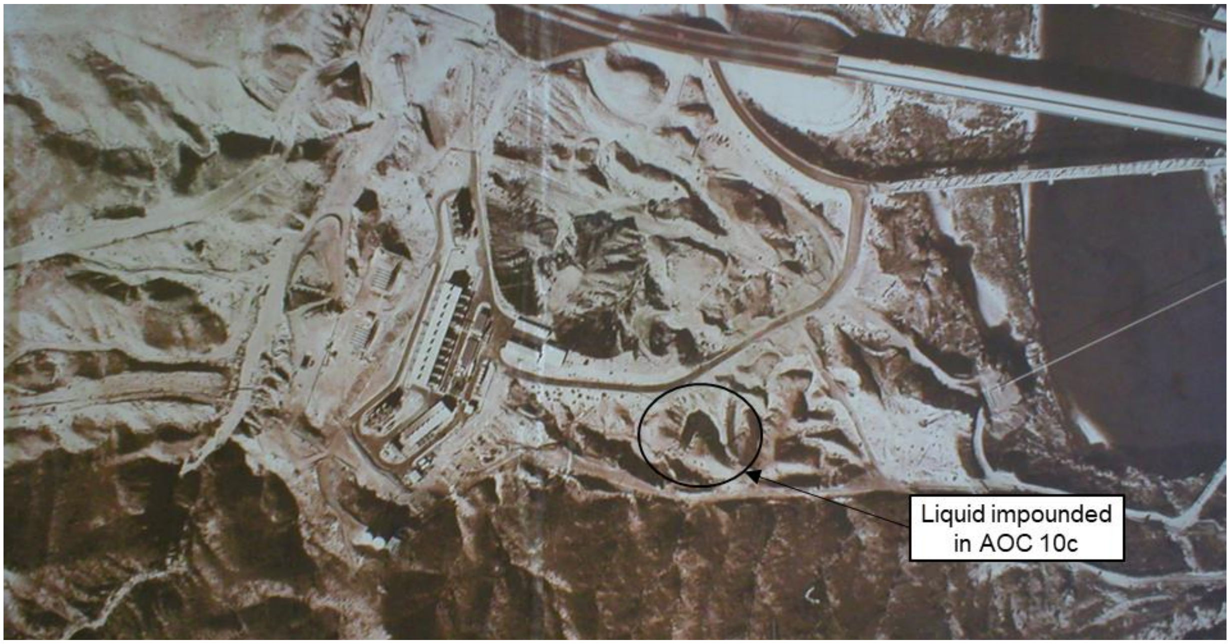
Photograph 4.1.4-3: July 24, 1962, Aerial Photograph Showing Liquid in AOC 10c



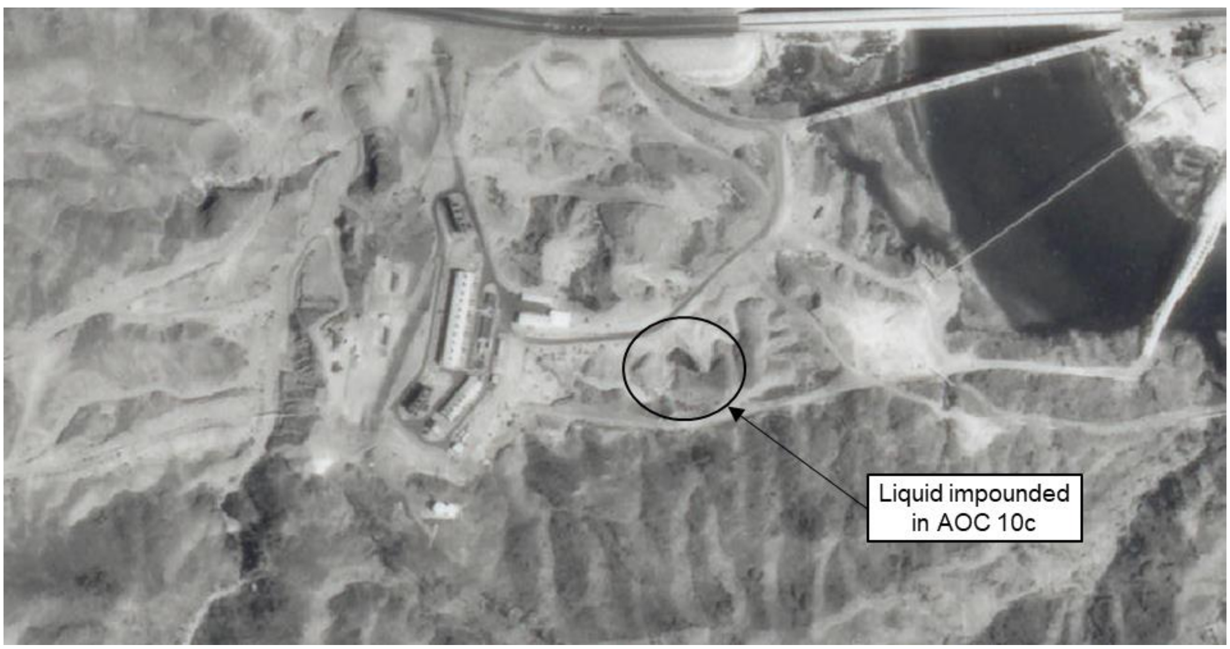
Photograph 4.1.4-4: May 18, 1964, Aerial Photograph Showing Liquid in AOC 10c



Photograph 4.1.4-5: May 22, 1967, Aerial Photograph Showing Liquid in AOC 10c and Bat Cave Wash



Photograph 4.1.4-6: 1967 Aerial Photograph Showing Liquid in AOC 10c



Photograph 4.1.4-7: April 14, 1969, Aerial Photograph Showing Liquid in AOC 10c

Topock Soil NTCRA

In October 2021, DOI issued an Action Memorandum entitled, *Request for a Non-Time-Critical Soil Removal Action at Areas of Concern and Solid Waste Management Units, Pacific Gas and Electric Topock Compressor Station* (DOI 2021b). As part of the NTCRA, four Target Action Areas (TAAs) were identified within AOC 10:

- AOC 10 TAA1
- AOC 10 TAA2

- AOC 10 TAA3
- AOC 10 TAA4

The TAAs roughly correspond with subareas AOC 10a, 10b, 10c, and 10d.

As of April 2023, NTCRA excavation at AOC 10 removed soil from subareas AOC 10b, 10c, and 10d, and much of the ravine bottom in between the subareas, totaling over 9,000 yd^3. The extent of excavation was expanded from each TAA until the excavation floor and sidewall sample results for metals and dioxin and furan concentrations were less than the NTCRA RAGs. Figures 3-6a through 3-6s and Appendix H show the extent of excavations, including floor and sidewall sample locations. Appendix H provides validated analytical data from floor and sidewall samples.

The NTCRA removal has removed the bulk soil up to 5 feet to 6 feet bgs from subareas AOC 10b, 10c, and 10d. The RFI/RI soil sample results reported in the following sections may no longer be present and may not represent current Site conditions.

4.1.4.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 10 is provided in this section, and Appendix B, Attachment B1 provides boring logs with more detailed lithologic descriptions by location.

Above approximately 545 feet amsl elevation, the soil at AOC 10 predominantly comprises silty sand with gravel, with approximately 30% gravel ranging from 1 inch to 3 inches in diameter, and 70% silt to fine sand. Between approximately 475 feet and 545 feet amsl, the soil predominantly comprises a relatively homogeneous unit of silty gravel with sand, with approximately 40 to 70% gravel up to 2 inches in diameter, 20 to 30% sand, and 30 to 40% silt. At approximately 475 feet amsl, a 2-foot layer of stiff silt was encountered. The silt layer pinches out between boring locations MW-58BR and MW-57BR. Beneath the silt layer is a unit comprising poorly graded sand with gravel, with approximately 30% gravel up to 1 inch in diameter, 65% sand, and 5% silt. The poorly graded sand with gravel unit pinches out between boring locations MW-58BR and MW-57BR. At MW-58BR, metadiorite bedrock was encountered at approximately 458 feet amsl. At MW-57BR, conglomerate bedrock was encountered at approximately 462 feet amsl. Figures 4-4c through 4-4e are cross sections showing lithology for AOC 10.

Descriptions of staining and debris observed in samples collected at AOC 10, and associated contamination, are as follows:

- At boring locations AOC10-26 and AOC10d-4, in Subarea AOC 10d, an approximately 2-inch-thick layer of white powder was observed between 2 feet and 2.5 feet bgs. The source of white powder is not known; however, it is possibly water softener sludge. The white powder layer was sampled directly between 2.5 feet and 2.7 feet bgs at AOC10-26; the following analytes exceeded their respective ISLs:
  - Antimony
  - Cadmium
  - CrVI
  - CrT
  - Copper
  - Lead
  - Mercury
  - Zinc
  - Dioxins and furans TEQ mammal
  - Dioxins and furans TEQ avian
  - Dioxins and furans TEQ human

- The white layer in Subarea AOC10d was encountered during excavation of NTCRA AOC 10 TAA 4. The following analytes were detected from samples of the white layer:
  - Chromium up to 530 mg/kg
  - CrVI up to 9.9 mg/kg
  - Dioxin and furan TEQ human to 1,300 ng/kg
- White powder and a greenish-gray layer were observed in the shallow sampled interval (1.5 to 2.0 feet bgs) at MW-58BR_S. The following analytes exceeded their ISLs:
  - CrVI
  - CrT
  - Copper
  - Lead
  - Mercury
  - Molybdenum
  - Thallium
  - Zinc

  Notably, CrT was detected at a concentration of 4,000 mg/kg and CrVI at 150 mg/kg.
- In subarea AOC10c (NTCRA area AOC10 TAA 2), multiple interbedded layers of white powder and green soil were encountered between 2.5 feet and 5 feet bgs. The layers were of varying thickness from 2 to 3 inches up to 2 feet and contained the following analytes:
  - Chromium up to 19,000 mg/kg
  - CrVI up to 579 mg/kg
  - Dioxin and furan TEQ human to 1,110 ng/kg

  Lead and copper also exceeded their respective ISLs. This material has been removed.
- At boring locations PA-20 and PA-21, located along the facility fence line north of AOC 10, red staining was observed in soil in the upper 1 foot of soil. The following analytes exceeded their ISLs:
  - Numerous metals analytes
  - B(a)P equivalent
  - Dioxins and furans TEQ
- At boring location AOC10-20, a distinct yellow discoloration was observed in approximately the upper sampled interval (0 foot to 0.5 foot bgs); the soil appeared clean in the lower sampled interval (2 feet to 3 feet bgs), and staining appeared to be limited to the upper approximately 1 foot of soil. The source of the yellow discoloration is unknown. The sample from 0 foot to 0.5 foot bgs had elevated concentrations of CrVI (2,700 mg/kg) and CrT (2,800 mg/kg). This material is scheduled to be removed by the NTCRA.
- At boring location AOC10-21, oily debris was observed in the upper sampled interval (0 foot to 0.5 foot bgs); the soil appeared clean in the lower sampled interval (2 feet to 3 feet bgs), and debris appeared to be limited to the upper approximately 1 foot of soil. In the sample collected from 0 foot to 0.5 foot bgs, the following analytes exceeded the ISLs:
  - Numerous metals analytes
  - B(a)P equivalent
  - TPH-d
  - Dioxins and furans TEQ avian
  - Dioxins and furans TEQ mammal
  - Dioxins and furans TEQ human

  Notably, copper was detected at a concentration of 3,100 mg/kg and TPH-d was detected at a concentration of 4,000 mg/kg. This material is scheduled to be removed by the NTCRA.
- At AOC10-22, alternating layers of dark and white debris layers were observed in sampled intervals from 0 foot to 3 feet bgs (dark staining from 0 foot to 0.5 foot and 2 feet to 3 feet bgs, and white

staining from 1 foot to 2 feet bgs); the soil appeared clean below approximately 3 feet bgs. The following analytes exceeded the ISLs:

- Numerous metals analytes
- B(a)P equivalent
- TPH-d
- Dioxins and furans TEQ avian
- Dioxins and furans TEQ mammal

Notably, TPH-d had a concentration of 2,100 mg/kg from 0.0 foot to 0.5 foot bgs, and 1,500 mg/kg from 2 feet to 3 feet bgs, corresponding with the layers of dark staining. This material is scheduled to be removed by the NTCRA.

4.1.4.4 Analytical Results

Appendix B summarizes general field and sample collection methods. Tables 3-6a through 3-6u provide analytical results for AOC 10, and Figures 3-6a through 3-6u show sampling locations.

This section provides a discussion about the screening level exceedances. Section 4.1.4.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Soil Results

Metals: Samples were collected from 74 locations at depths ranging from 0 foot to 60 feet bgs. The ISLs were exceeded for one or more of the following metals at locations across AOC 10:

- Arsenic (BK)
- Barium (BK)
- Cadmium (BK)
- CrVI (BK)
- CrT (BK)
- Cobalt (BK)
- Copper (BK)
- Lead (BK)
- Mercury (BK)
- Molybdenum (BK)
- Nickel (BK)
- Selenium (BK)
- Thallium (RRSL)
- Zinc (BK)

The most frequently detected analytes exceeding the ISLs were (Table 3-6a and Figures 3-6a through 3-6l):

- CrVI
- CrT
- Copper
- Lead
- Mercury
- Molybdenum
- Nickel
- Zinc.

Sample locations along the northern face of the ravine were generally free of ISL exceedances, while the samples within the ravine bottoms and corresponding flow paths (for example, from the former trench drain) had most the ISL exceedances, as follows:

- CrVI was detected exceeding its ISL (0.83 mg/kg) in 54 samples taken from depths between 0 foot and 10 feet bgs (Table 3-6a). The greatest CrVI concentration of 2,700 mg/kg was detected at sample location AOC10-20 at the surface to 0.5 foot bgs. Sample location AOC10-20 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6c). As discussed in Section 4.1.4.3, a distinct yellow discoloration was observed in the upper 1 foot of soil at AOC10-20. This area is part of the NTCRA. Extents will be reevaluated after removal.
- CrT was detected exceeding its ISL (39.8 mg/kg) in 66 samples taken from depths between 0 foot and 15 feet bgs (Table 3-6a). The greatest CrT concentration of 4,000 mg/kg was detected at sample location MW-58BR_S at 1.5 feet to 2 feet bgs. Sample location MW-58BR_S is a monitoring well in the bottom of the ravine, behind the impoundment that was constructed across the ravine (Figure 3-6d). The 1.5 feet to 2.0 feet bgs sample interval contained white powder material and a greenish-gray layer as observed by DTSC in 2009.
- Copper was detected exceeding its ISL (20.6 mg/kg) at 65 samples taken from depths between 0 foot and 60 feet bgs (Table 3-6a). The greatest copper concentration of 3,100 mg/kg was detected at sample location AOC10-21 at the surface to 0.5 foot bgs. Sample location AOC10-21 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6f). As discussed in Section 4.1.4.3, oily debris was observed in the upper 1 foot of soil at AOC10-21.
- Lead was detected exceeding its ISL (8.39 mg/kg) in 56 samples taken from depths between 0 foot and 10 feet bgs (Table 3-6a). The greatest lead concentration of 920 mg/kg was detected at sample location AOC10-21 at the surface to 0.5 foot bgs. Sample location AOC10-21 was collected on the slope just below the TCS fence line and the visitor parking lot on the TCS (Figure 3-6g). As discussed in Section 4.1.4.3, oily debris was observed in the upper 1 foot of soil at AOC10-21.
- Mercury was detected exceeding its ISL (0.0125 mg/kg) in 11 samples taken from depths between 0 foot and 9 feet bgs (Table 3-6a). The greatest mercury concentration of 35 mg/kg was detected at sample location AOC10-21 at the surface to 0.5 foot bgs. Sample location AOC10-21 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6h). As discussed in Section 4.1.4.3, oily debris was observed in the upper 1 foot of soil at AOC10-21.
- Molybdenum was detected exceeding its ISL (1.37 mg/kg) in 25 samples taken from depths between 0 foot and 18 feet bgs (Table 3-6a). The greatest molybdenum concentration of 19 mg/kg was detected at sample location AOC10a-1 at the surface to 0.5 foot bgs. Sample location AOC10a-1 was collected near the outfall of a storm drain line near AOC-9 (Figure 3-6i).
- Nickel was detected exceeding its ISL (27.3 mg/kg) in 11 samples taken from depths between 0 foot and 9 feet bgs (Table 3-6a). The greatest nickel concentration of 51 mg/kg was detected at sample location AOC10-22 at 1 foot to 2 feet bgs. Sample location AOC10-22 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6j). As discussed in Section 4.1.4.3, white-colored debris was observed in the 1-foot to 2-foot interval of soil at AOC10-22. In the 1-foot to 2-foot bgs sample collected at AOC10-22, CrVI and CrT exceeded their respective ISLs.
- Zinc was detected exceeding its ISL (58 mg/kg) in 64 samples taken from depths between 0 foot and 30 feet bgs (Table 3-6a). The greatest zinc concentration of 1,000 mg/kg was detected at sample location AOC10a-1 at the surface to 0.5 foot bgs. Sample location AOC10a-1 was collected near the outfall of a storm drain line near AOC-9 (Figure 3-6l).

NTCRA excavations conducted before April 19, 2023 at AOC 10 removed soil from Subareas AOC 10b, 10c, and 10d, and the flow path before and after Subarea AOC 10b. Much of the soil represented by previous RFI/RI samples was removed as part of these NTCRA excavations. Because of this, many RFI/RI soil sample results no longer represent current Site conditions. In most locations, the extent of excavation expanded until the confirmation floor and sidewall samples had metals and dioxin and furan concentrations less than the NTCRA RAGs. In some areas of East Ravine, excavation continued into fairly competent bedrock, as impacts appeared to infiltrate a few feet into the ravine sidewalls at some locations. Although excavated areas may not be defined to Part A ISLs, additional characterization is not recommended, as nature and extent is considered defined with respect to NTCRA RAGs for metals and dioxins and furans in the excavated areas.

The lateral extent of the exceedances has generally been defined for metals by samples with results less than ISLs, not detected greater than reporting limits, or topographical features. The exceedances on the western side of AOC 10 are defined by the sources of contamination: runoff from the TCS and discharges from storm drainpipes and the former trench drain. The exceedances on the northern slopes of the ravine and within the base of the ravine are defined by the flow path through AOC 10.

There are locations that have detected metals results slightly exceeding (up to 2 times) their respective ISLs. Concentrations of lead at the downgradient (eastern) side of AOC 10 (for example, AOC10-5 through AOC10-8) are greater than the ISL. The most downgradient sample (AOC10-8) also had an ISL exceedance for zinc. These locations were screened against the lead and zinc RBCs and were not found to exceed the RBCs. Although the lateral extent of lead and zinc exceedances are not defined to the ISLs at the eastern side of AOC 10, the exceedances do not present an unacceptable risk to receptors. Therefore, the lateral extent of metals is not considered a data gap that requires filling.

The vertical extent of the exceedances are generally defined for most locations by samples with results less than ISLs, results not detected greater than reporting limits, topographical features, or NTCRA excavation. Although there are locations where the deepest samples exceeded ISLs, this does not represent a data gap requiring further investigation because nearby samples define vertical extent or the concentrations exceeding the ISLs are decreasing with depth.

The vertical extent of exceedances has not been defined for metals at multiple locations. The results of further screening of metals against RBCs is summarized as follows:

- Metals concentrations (copper, CrVI, CrT, lead, and mercury) at SD02 exceed RBCs, and concentrations increase with depth. This area is part of the NTCRA. Extents will be reevaluated after removal.
- Zinc concentration at SD-21 (60 mg/kg) increases slightly with depth but is over an order of magnitude less than the RBC (1,050 mg/kg).
- Before implementation of the NTCRA, CrT and zinc concentrations at PS-21 were considered undefined vertically, as concentrations increased with depth. PS-21 and the surrounding area along the bottom of East Ravine was excavated as part of the NTCRA. NTCRA confirmation samples collected from the excavation side wall (AOC10TA22-CW27-2) and floor (AOC10TAA2-CF13-4) near PS-21 had concentrations less than the ISLs for CrT and zinc (Appendix H). Nature and extent is considered defined vertically for CrT and zinc at PS-21.
- Copper and nickel concentrations at AOC10a-3 are less than the human health RBC for recreators in the deepest sample (9 feet to 10 feet bgs, not available to ecological receptors), but concentrations increase with depth.
- Mercury concentrations at AOC10a-3 do not increase with depth, are less than the RBC (1 mg/kg), and do not present an unacceptable risk to receptors. The vertical extent of mercury at AOC10a-3 is not considered a data gap that requires additional investigation.
- CrT and nickel concentrations at AOC10a-4 3 are less than the human health RBC for recreators in the deepest sample (9 feet to 10 feet bgs, not available to ecological receptors), but concentrations increase with depth.
- Before implementation of the NTCRA, copper concentration at AOC10c-4 was considered undefined vertically because the concentration increased from the 5-foot to 6-foot bgs sample to the 9-foot to 10-foot bgs sample. AOC10c-4 and the surrounding area was excavated as part of the NTCRA. The

area near AOC10c-4 was excavated to approximately 5 to 6 feet, which is shallower than the vertical extent data gap at AOC10c-4 (10 feet bgs). However, copper concentrations in NTCRA confirmation samples collected from the excavation floor near AOC10c-4 (AOC10TAA2-CF7-5 and AOC10TAA2-CF14a-6, Appendix H) were less than the ISL of 16.8 mg/kg. Nature and extent of copper is considered defined vertically at AOC10c-4.

- The concentration of copper at L-2-3 is greater than the RBC; however, the concentration in a nearby deeper sample (AOC10c-4) is less than the RBC. Additionally, this area was excavated as part of the NTCRA.
- Arsenic, barium, and copper concentrations increase with depth at AOC10-5. The concentrations of barium and copper are less than the RBCs, but the RBC for arsenic is less than the ISL (BK); therefore, it is not used for comparison. Deeper samples could not be collected at AOC10-5 because bedrock was encountered at 8.2 feet bgs. The vertical extent of metals is considered defined by bedrock at this location.
- Before implementation of the NTCRA, zinc concentration at AOC10-11 was considered undefined vertically because the concentration increased with depth. AOC10-11 and the surrounding area was excavated as part of the NTCRA. The area near AOC10-11 was excavated to approximately 5 to 10 feet, which is generally shallower than the vertical extent data gap at AOC10-11 (10 feet bgs). However, zinc concentrations in samples collected from the excavation floor near AOC10-11 (AOC10TAA2-CF8a-5 and AOC10TAA2-CF22a-10, Appendix H) were less than the ISL of 58 mg/kg. Nature and extent of zinc is considered defined vertically at AOC10c-4.
- CrT and molybdenum at opportunistic samples AOC10-OS1, AOC10-OS2, and AOC10-OS4 are less than RBCs except for CrT at AOC10-OS4. As these samples were opportunistic samples collected during station work, only one depth was sampled, and concentration trends with depth are not available. AOC10-OS4 was collected from 6.5 feet to 7 feet bgs, below what is available to ecological receptors. As the RBC for CrT is based on the desert shrew (145 mg/kg), and the smallest RBC for a human receptor is greater than 100,000 mg/kg, this location does not present a risk to receptors to which the soil is available.
- Molybdenum and zinc concentrations at MW-57BR are less than the RBCs; however, concentrations increase from the 8-foot to 9-foot bgs samples to the 18-foot to 19-foot bgs sample. Although concentrations increase with depth, this is not considered a data gap that requires filling because the increasing concentrations are more likely related to changes in soil type at depth rather than contamination.
- Copper and cobalt concentrations at MW-58BR_S are less than the RBCs; however, concentrations increase from the 49-foot to 50-foot bgs samples to the 59-foot to 60-foot bgs samples. Although concentrations increase with depth, this is not considered a data gap that requires filling because the increasing concentrations are more likely related to changes in soil type at depth rather than contamination.
- Although concentrations decrease with depth, because the CrVI concentration in the deepest sample at AOC10-20 is almost four times greater than the RBRG (3.1 mg/kg), vertical extent of CrVI is considered undefined at AOC10-20. This area is part of the NTCRA. Extents will be reevaluated after the NTCRA is complete.

Deeper samples would be difficult to collect in some of these areas (for example, steep slope, bedrock), and would cause significant disturbance. The concentrations in the deepest samples for most locations noted do not exceed RBCs and do not pose an unacceptable risk to receptors. However, because there are multiple locations where concentrations increase with depth, areas represented by these locations (the slope below the visitor parking lot, northern ravine slope, and Subarea AOC 10a) are recommended to be considered for inclusion in the CMS/FS. The area below the visitor parking lot is scheduled for removal as part of the NTCRA. This area will be reassessed after the NTCRA is complete.

Two additional samples were collected from AOC 10 during groundwater remedy construction (AOC10-GRBS-25 and AOC10-OPP-PLF) (Appendix F, Table F-1a). There were no exceedances of ISLs.

CLP Inorganics: Samples were collected from 13 locations (a subset of the total AOC 10 locations) at depths ranging from 0 foot to 3 feet bgs. The ISLs were exceeded for one or more of the following metals:

- Aluminum (BK)
- Calcium (BK)
- Iron (BK)
- Magnesium (BK)
- Manganese (BK)
- Sodium (BK)

Manganese was the only analyte detected exceeding the ISL more than once, as shown in Table 3-6b.

Manganese was detected exceeding its ISL (402 mg/kg) in 2 samples taken from depths between 0 foot and 0.5 foot bgs (Table 3-6b). The greatest manganese concentration of 1,300 mg/kg was detected at sample location AOC10-5 at the surface to 0.5 foot bgs. Sample location AOC10-5 was collected in the impoundment area between the two access roads in eastern part of the ravine.

The lateral extent of exceedances is defined by samples with results less than ISLs, results not detected greater than reporting limits, or topographical features. Only 1 sample was collected below 1 foot bgs, limiting the definition of vertical extent. This limited definition for CLP inorganics is not considered a data gap requiring further investigation because CLP inorganics are not compounds driving risk.

Two additional samples were collected from AOC 10 during groundwater remedy construction (AOC10-GRBS-25 and AOC10-OPP-PLF) (Appendix F, Table F-1b). There were no exceedances of ISLs.

PAHs: Samples were collected from 58 locations at depths ranging from 0 foot to 60 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. The ISLs for B(a)P equivalents (RRSL) and HMW PAHs (ECV) were exceeded at one or more locations, as shown in Table 3-6c and Figures 3-6m and 3-6n. The greatest concentrations of PAHs were detected at the top of the slope near the TCS. Exceedances are summarized as follows:

- B(a)P equivalent exceeded the ISL (110 µg/kg) in 16 samples taken from depths between 0 foot and 3 feet bgs (Table 3-6c). The greatest B(a)P equivalent concentration of 8,200 mg/kg was detected at sample location PA-19 at the surface to 1 foot bgs. Sample location PA-19 was collected at the top of the slope near the TCS fence line (Figure 3-6m).
- HMW PAHs exceeded the ISL (1,160 mg/kg) in 10 samples taken from depths between 0 foot and 3 feet bgs (Table 3-6c). The greatest HMW PAH concentration of 32,900 µg/kg was detected at sample location PA-19 at the surface to 1 foot bgs. Sample location PA-19 was collected at the top of the slope near the TCS fence line (Figure 3-6n).

The lateral extents of the exceedances have been defined by samples with results less than ISLs, not detected greater than reporting limits, or topographical features. The exceedances on the western side of AOC 10 are defined by the sources of contamination: runoff from the TCS and discharges from storm drainpipes and the former trench drain. The exceedances on the northern slopes of the ravine and within the base of the ravine are defined by the flow path through AOC 10. There are no PAH exceedances at the downgradient (eastern) side of AOC 10 (for example, AOC10-7 and APC10-8).

The vertical extents of the exceedances have been defined by samples with results less than ISLs, except at SD-02, where B(a)P equivalents and HMW PAHs exceeded their respective ISLs and increase with depth. This area is part of the NTCRA. Extents will be reevaluated after removal.

Two additional samples were collected from AOC 10 during groundwater remedy construction (AOC10-GRBS-25 and AOC10-OPP-PLF) (Appendix F, Table F-1c). There were no exceedances of ISLs.

VOCs and SVOCs: Samples were collected from 37 locations at depths ranging from 0 foot to 60 feet bgs, and no samples had detected results that exceeded their respective ISLs (Table 3-6d).

TPH: Samples were collected from 43 locations at depths ranging from 0 foot to 60 feet bgs. The ISL for TPH-d (RWQCB ESL) was exceeded at the following locations (Table 3-6e and Figure 3-6o):

- AOC10-21
- AOC10-22
- AOC10-23
- SD-02

TPH-d was detected exceeding its ISL (230 mg/kg) in 5 samples taken from depths between 0 foot and 3 feet bgs (Table 3-6e). The greatest TPH-d concentration of 4,000 mg/kg was detected at sample location AOC10-21 at the surface to 0.5 foot bgs. Sample location AOC10-21 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6o).

The lateral extent of the exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits. The vertical extent of exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits, except at SD-02, where TPH-d exceeded the ISL in the deepest sample. This area is part of the NTCRA. Extents will be reevaluated after removal.

One additional sample was collected from AOC 10 during groundwater remedy construction (AOC10-OPP-PLF) (Appendix F, Table F-1d). There were no exceedances of ISLs.

General Chemistry: Samples were collected from 45 locations at depths ranging from 0 foot to 11.5 feet bgs (Table 3-6f). There are no ISLs for general chemistry parameters. One additional sample was collected from AOC 10 during groundwater remedy construction (AOC10-OPP-PLF) (Appendix F, Table F-1e).

Pesticides: Samples were collected from 16 locations at depths ranging from 0 foot to 10 feet bgs. No samples had detected results that exceeded their respective ISLs (Table 3-6g). One additional sample was collected from AOC 10 during groundwater remedy construction (AOC10-OPP-PLF) (Appendix F, Table F-1f). There were no exceedances of ISLs.

PCBs: Samples were collected from 39 locations at depths ranging from 0 foot to 15 feet bgs. PCBs were evaluated as individual Aroclors and as total PCBs. The ISLs for Aroclor 1248 (RRSL), Aroclor 1254 (RRSL), and total PCBs (ECV) were exceeded at one or more of the following locations: AOC10-15, AOC10a-3, and PA-18:

- Aroclor 1248 was detected exceeding the ISL (230 µg/kg) in 1 sample: AOC10-15 at 2 feet and 3 feet bgs (Table 3-6h). Aroclor 1248 was detected at 320 µg/kg. Sample location AOC10-15 was collected in a debris pile consisting of debris that appeared to come from the TCS based on the presence of wood slatting that was similar to former cooling tower construction materials.
- Aroclor 1254 were detected exceeding the ISL (240 µg/kg) in 3 samples taken from depths between 0 foot and 2 feet bgs (Table 3-6h). The greatest Aroclor 1254 concentration of 990 µg/kg was detected at sample location AOC10-15 at the surface to 1 foot bgs. Sample location AOC10-15 was collected in a debris pile.
- Total PCBs were detected exceeding the ISL (204 µg/kg) in 5 samples taken from depths between 0 foot and 6 feet bgs (Table 3-6h). The greatest total PCB concentration of 1,007 µg/kg was detected

at sample location AOC10-15 at the surface to 1 foot bgs. Sample location AOC10-15 was collected in a debris pile (Figure 3-6p).

The lateral and vertical extent of the exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits.

One additional sample was collected from AOC 10 during groundwater remedy construction (AOC10-OPP-PLF) (Appendix F, Table F-1g). There were no detections of PCBs.

Dioxins and Furans: Samples were collected from 28 locations at depths ranging from 0 foot to 15 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ human (RRSL), TEQ avian (ECV), and TEQ mammal (ECV) were exceeded at one or more locations, as shown in Table 3-6i and Figures 3-6r and 3-6s:

- TEQ avian exceeded the ISL (16 ng/kg) in 27 samples taken from depths between 0 foot and 6 feet bgs (Table 3-6i). The greatest TEQ avian concentration of 1,100 ng/kg was detected at sample location PA-20 at the surface to 1 foot bgs. Sample location PA-20 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6q).
- TEQ human exceeded the ISL (50 ng/kg) in 22 samples taken from depths between 0 foot and 9 feet bgs (Table 3-6i). The greatest TEQ human concentration of 1,600 ng/kg was detected at sample location PA-20 at the surface to 1 foot bgs. Sample location PA-20 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6r).
- TEQ mammal exceeded the ISL (5.58 ng/kg) in 43 samples taken from depths between 0 foot and 9 feet bgs (Table 3-6i). The greatest TEQ mammal concentration of 1,600 ng/kg was detected at sample location PA-20 at the surface to 1 foot bgs. Sample location PA-20 was collected on the slope just below the TCS fence line and the visitor parking lot (Figure 3-6s).

NTCRA excavations conducted before April 19, 2023 at AOC 10 removed soil from Subareas AOC 10b, 10c, and 10d, and the flow path before and after Subarea AOC 10b. Much of the soil represented by previous RFI/RI samples was removed as part of these NTCRA excavations. Because of this, many RFI/RI soil sample results no longer represent current Site conditions. In most locations, the extent of excavation expanded until the confirmation floor and sidewall samples had metals and dioxin and furan concentrations less than the NTCRA RAGs. In some areas of East Ravine, excavation continued into fairly competent bedrock, as impacts appeared to infiltrate a few feet into the ravine sidewalls at some locations. Although excavated areas may not be defined to Part A ISLs, additional characterization is not recommended, as nature and extent is considered defined with respect to NTCRA RAGs for metals and dioxins and furans in the excavated areas.

The lateral extents of TEQ avian and human exceedances have been defined by samples with results less than ISLs, not detected greater than reporting limits, or due to topographical features.

The vertical extents of TEQ avian and human exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits, except for the following sample locations: PA-20 and PA-21. This area is part of the NTCRA. Extents will be reevaluated after the NTCRA is complete.

Before implementation of the NTCRA, TEQ avian and human at AOC10-24, AOC10-26, and AOC10b-1 were considered undefined vertically. NTCRA excavation occurred in the areas in and around these samples. Although excavated areas may not be defined to Part A ISLs, nature and extent is considered defined with respect to NTCRA RAGs.

The lateral and vertical extents of the TEQ mammal exceedances have not been defined by samples with results less than ISLs or not detected greater than reporting limits. These exceedances of the ISLs do not represent a data gap requiring further investigation because the TEQ mammal ISL (5.58 ng/kg) is the most conservative and lowest screening level for dioxin TEQ. Additionally, lateral and vertical extent have been defined to the RBRG for TEQ mammal (190 to 360 ng/kg). Further investigation to assess the lateral and vertical extent of TEQ mammal is not warranted.

Two additional samples were collected from AOC 10 during groundwater remedy construction (AOC10-GRBS-25 and AOC10-OPP-PLF) (Appendix F, Table F-1h). There were no exceedances of ISLs.

Sediment and Porewater Results

A total of 35 sediment samples and 16 pore water samples were collected from the vicinity of the mouth of East Ravine. Sediment samples collected from depths between 0 and 2 feet below sediment surface (bss) were analyzed for the following analytes:

- Title 22 metals
- CrVI
- PAHs
- VOCs
- SVOCs
- Dioxins and furans
- PCBs

Sediment samples collected from depths between 5.5 feet and 6 feet bss were analyzed for the following analytes:

- CrT
- CrVI
- Molybdenum
- PAHs
- VOCs
- SVOCs
- PCBs

Table 3-6k through 3-6o present sediment results.

Porewater samples were collected from 1 foot and 6 feet bss and analyzed for the following analytes:

- Title 22 metals
- CrVI
- CLP inorganics
- General chemistry
- Field parameters

Table 3-6p through 3-6r provide the porewater results.

Metals in Sediment: The ISLs were exceeded at one or more locations for the following analytes (Table 3-6k and Figures 3-6t and 3-6u):

- Arsenic (consensus-based TEC)
- Barium (BK)
- Copper (TEC)
- Lead (TEC)
- Molybdenum (BK)
- Selenium (BK)
- Zinc (TEC)

Most the exceedances were less than 2 times the ISLs or were not detected in the deepest sediment samples; therefore, these exceedances do not represent a data gap requiring further investigation. Zinc was detected slightly greater than twice the ISL at ERPW-6 between 1 foot and 2 feet bss, but is bound by nearby sediment samples; therefore, it does not represent a data gap requiring further investigation.

Dioxins and Furans in Sediment: Dioxins and furans were analyzed at 3 sample locations at depths ranging from 0 foot to 2 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. Detected results for TEQ avian, human, and mammal were not greater than their respective ISLs or BK values, as shown in Table 3-6o.

Other Analytes in Sediment: In addition, PCBs (Table 3-6n), PAHs (Table 3-6l), VOCs, and SVOCs were not detected greater than laboratory reporting limits in sediment samples.

Metals in Porewater: The following analytes were detected at one or more of the porewater sample locations (Table 3-6p)

- Antimony
- Arsenic
- Barium
- CrT
- Cobalt
- Copper
- Lead
- Molybdenum
- Nickel
- Selenium
- Vanadium

Metals in porewater were screened against surface water screening levels (samples 0 foot to 1 foot bgs) and TCS ambient groundwater concentrations (samples 5 foot to 6 feet bgs). Per the *East Ravine Sediment and Pore Water Sampling Work Plan* (Appendix A, Subappendix C, Attachment C4-1; CH2M 2013a), pore water samples were analyzed for the following analytes:

- CrVI
- CrT
- Molybdenum
- General chemistry
- Title 22 metals (0 foot to 1 foot bgs samples only)

Detections in shallow porewater were well less than the surface water screening levels. Detections in deep porewater were less than Topock ambient groundwater concentrations, except for molybdenum at ERPW-10. This result is bounded by nearby samples (ERPW-8 and ERPW-9) with concentrations less than Topock ambient groundwater concentrations. No data gaps were identified for the sediment and porewater samples.

4.1.4.5 AOC 10 Conceptual Site Model

Figures 4-4a through 4-4e provide a graphical CSM and cross section for AOC 10 based on the Site history and background. Exhibit 4-8 provides the following information for AOC 10:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

Exhibit 4-8. Conceptual Site Model – AOC 10 – East Ravine
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Runoff from TCS, TCS access road, and AOC 9 **COPCs include:** • Metals • PCBs • PAHs • Dioxins and furans	• Surface Soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[b] • Potential discharge of groundwater to surface water [a]	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals
Incidental overflows of chromium-containing cooling water from the former trench drain **COPCs include:** • Metals	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[b] • Potential discharge of groundwater to surface water [a]	
Discharge from TCS from stormwater drains **COPCs include:** • Metals • PCBs • PAHs • Dioxins and furans	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[b] • Potential discharge of groundwater to surface water [a]	
Disposal of debris **COPCs include:** • Metals • PCBs • PAHs	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion/enclosed space accumulation[b] • Potential discharge of groundwater to surface water [a]	

[a] Discharge to surface water is an insignificant transport pathway as evaluated in the groundwater risk assessment (Arcadis 2009c).

[b] Enclosed space accumulation refers to any area where vapor can accumulate.

Yellow arrows shown on Figure 4-4a represent flow within the East Ravine, and blue arrows represent surface water flow into the East Ravine. A detailed discussion of the following topics is included in Soil Part A DQOs TM (CH2M 2010), and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

For AOC 10, the primary potential sources of contamination are

- Discharge and runoff from the TCS, the access road to the TCS, and AOC 9
- Discharge from stormwater drainpipes
- Surface debris disposed of on the slopes of the ravine
- Incidental overflows of chromium-containing hotwell (AOC 19) cooling water from the former trench drain at the top of the station access road

Releases would primarily have been in liquid form and would have affected surface soil. Releases from debris, whether consisting of solid particles or dissolved constituents, would also have affected surface soil. The greatest concentrations of contaminants generally occur along the slope in surface soils near the TCS fence line and in surface and subsurface soils along the ravine flow path. COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 10, this migration may result in COPCs at the top of the hillside migrating down the hillside and continuing down the flow path of East Ravine.

Exceedances are described as follows:

- The presence of the following analytes at AOC 10 is likely related to the release of cooling water from the former trench drain:
  - CrVI
  - CrT
  - Molybdenum
- The presence of wear metals is likely related to runoff from the TCS, access road, and stormwater discharge, and to the disposal of debris (for example, pieces of metal, cans, tires, concrete rubble, tiles, and bricks) on the ravine slopes, including the following analytes:
  - Wear metals:
    - Zinc
    - Copper
    - Nickel
    - Lead
  - PAHs
  - TPH
  - PCBs
- Mercury contamination at AOC 9 may have migrated to AOC 10 from runoff.
- The primary source of dioxins and furans at the Site is residuals from apparent historical burning of TCS waste.

The soil samples collected in the areas of white material along the northern slope of the ravine (AOC10-13, -14, and -17) did not show elevated concentrations of metals consistent with the metals detected in the white powder samples collected between Subareas 10c and 10d. This indicates the white material along the northern slope of the ravine did not contribute to surface soil contamination in this area. The white material along the northern slope of the ravine appears to be located in an area where white material appeared after a heavy rain. This appears to be a natural material, possibly an evaporite deposit. This white material is ephemeral in nature. No elevated concentrations of chromium were detected in these 3 samples.

DTSC observed and sampled white powder that had the consistency of pure white, poorly indurated, white powder that they believed was white water softener sludge in samples such as:

- DTSC-AOC10d-1
- DTSC-AOC10d-2
- DTSC-AOC10d-3

These samples were located at the base of the wash and may be water softener sludge transported to AOC 10 via overland flow. White powder transport via overland flow may be supported by the presence of a white debris layer from 2.5 feet to 2.6 feet bgs at AOC9-22 (Appendix B, Attachment B1, Soil Boring Logs) and a layer of white powder near the base of the AOC 9 slope found during installation of groundwater remedy pipelines (that is, Appendix F, November 12, 2019 sample PLB-OPP-WHT). For this interpretation, the elevated concentrations of chromium and other metals in the white powder could be from the white powder being exposed to chromium-containing releases from the hotwell (AOC 19).

Findings during NTCRA removal activities within East Ravine indicate discharges of waste material to East Ravine occurred. White layers of material, assumed to be water softener sludge, were encountered within the ravine bottom from Subarea AOC10b to AOC10d, indicating releases likely occurred before the berm at was AOC10c built. Interbedded white and greenish layers of impacted soil of varying thickness were encountered in soil within Subarea AOC10c, behind the berm, indicating there was likely repeated discharge of waste materials occurred after berm construction. Discharge to East Ravine appears to emanate from a drainpipe on the eastern side of the TCS, as shown on Photograph 4.1.4-1, a 1965 aerial photograph. The source of dioxins and furans within East Ravine is not known with certainty, but the association with chromium suggests they were derived from the historical discharges of wastewater into East Ravine.

Surface soil is the primary source medium. From surface soil, contaminants could have migrated to shallow and deeper soils; shallow soils may act as a secondary source medium to subsurface soil, and subsurface soil may act as a secondary source medium to groundwater. Periodic rainfall events and runoff to the East Ravine would have pooled in the drainage depressions identified as Subareas 10b, 10c, and 10d. In these subareas, contaminants could potentially be driven deeper and could potentially reach groundwater. In other words, accumulation behind berms may have resulted in enhanced infiltration.

The chromium distribution in East Ravine bedrock likely resulted from CrVI in water that ponded in the East Ravine. The ponded water could have easily infiltrated through the alluvium beneath the ponds and into fractures in the underlying bedrock. The head in the ponds would have been 60 to 80 feet higher than the head in the fractures, so the infiltrating water would have sufficient driving force to displace the water in the fractures, spreading CrVI through the fracture network. Because the volume of the water in the fracture network is small, a relatively short period of ponding could have provided a sufficient volume of water to displace the groundwater in a large network of bedrock fractures (CH2M 2013b). The analytical results for AOC 10 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time.

A secondary source may also include contaminated windblown dust. For AOC 10, windblown dust contamination, either from AOC 9 or other areas of the East Ravine, could have been deposited in the ravine or on shallow portions of the banks of the ravine. Windblown contamination, if any, is expected to be limited to surface soils.

AOC 10 was a likely source of historical groundwater contamination based on the following factors:

- Known releases to East Ravine of chromium-containing JCW from the hotwell (AOC 19)
- The presence of impoundments that could drive contamination deep into the subsurface

- The presence of chromium in East Ravine bedrock
- Chromium concentrations in groundwater

Because of the berms within East Ravine, surface flow to the Colorado River is not considered a significant potential migration pathway. One berm, the lower dirt road berm associated with old Route 66, was constructed before the development of the TCS. The berm associated with the Southern California Gas Pipeline Road was constructed in the late 1950s or early 1960s, after the TCS was built. Although a culvert exists in the lower dirt road berm, COPCs concentrations east of this road are low, and there are no reports of flow through the culvert from the upper East Ravine. CrVI was not detected, and CrT was less than BK in the soil sample immediately east of the lower dirt road berm.

4.1.4.6 Evaluation of Data Against Data Quality Objectives for AOC 10

This section discusses the evaluation of data against DQOs for AOC 10.

Decision 1 (Nature and Extent Determination): Nature and extent have not been sufficiently defined vertically for the following compounds and associated areas:

- CrVI at AOC10-20 on the slope just below the TCS fence line and visitor parking lot
- Copper, total chromium, and nickel in Subarea AOC 10a (AOC10a-3 and AOC10a-4)
- The following analytes on the slope just below the TCS at location SD-02:
  - Metals, including:
    - Copper
    - CrVI
    - CrT
    - Lead
    - Mercury
  - B(a)P equivalents
  - HMW PAHs
  - TPH-d
- Dioxins and furans on the slope just below the TCS fence line and the visitor parking lot (PA-20 and PA-21)

Areas and sample locations in AOC 10 with data gaps shall be considered for inclusion in the CMS/FS. Several locations within AOC 10 are NTCRA TAAs. NTCRA excavation at AOC 10 is ongoing as of June 2023, and data will be reevaluated after the NTCRA is complete.

Tables 3-6a through 3-6r and Figures 3-6a through 3-6u provide the analytical results. Table 3-6j provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances in soil samples against each screening value is presented in.

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 242 soil samples were collected from 78 locations ranging from 0 foot to 60 feet bgs for AOC 10. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry parameters
- Pesticides

- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential future threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions. As noted in the CSM, AOC 10 was a likely source of historical groundwater contamination.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are insufficient to support CMS/FS and/or IMs. The following data gap was identified in the Soil RFI/RI Work Plan: Soil physical parameters to support the CMS/FS.

No samples from AOC 10 were analyzed for soil characteristics during implementation of the RFI/RI Work Plan. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

Additional Considerations: It is recommended that removal and disposal of surficial debris material be carried forward to CMS/FS.

4.1.5 AOC 11 – Topographic Low Areas

This section provides details about AOC 11 – Topographic Low Areas.

4.1.5.1 Setting

AOC 11 consists of seven topographic low areas (AOCs 11a through 11g) on the northeastern side of the TCS, as shown on Figure 2-1. AOC 11 is located on PG&E, HNWR, and San Bernardino County property. AOC 11 is an internally draining basin where stormwater runoff collects and infiltrates or evaporates from the following areas:

- TCS
- North of the TCS
- I-40
- The TCS access road
- The Transwestern Bench

4.1.5.2 Unit History

Multiple storm drains discharge to this area, and several former storm drains are believed to have discharged to this area in the past. In addition, portions of AOC 11 also receive discharge from the TCS access road. A historical engineering drawing shows that some cooling water blowdown may initially have been discharged to AOC11 from the storm drain system (PG&E 1957a), and a former employee reported that he observed a release from Cooling Tower B that entered the ravine containing AOC 11 (CH2M 2012).

The original TCS access road ran through the area now identified as AOC 11a. A stormwater pipe that captures runoff from I-40 and NTH discharges into AOC 11 north of AOC 11a immediately south of the I-40 overcrossing. Stormwater runoff from I-40 could have resulted in the release of the following analytes into AOC 11, and specifically AOC 11a, that are not a result of PG&E's operations at the TCS:

- TPH
- PAHs

- Lead
- Wear metals, including:
  - Barium
  - Chromium
  - Copper
  - Nickel
  - Zinc

Substantial flow from the I-40 stormwater pipe has been observed. After storm events, water pools in area AOC11a and does not readily percolate.

AOCs 11c and 11e are associated with the remnants of two small former check berms. These check berms may have been constructed to prevent stormwater damage to a gas pipeline and a former access road to the TCS. A new area of white material was observed upslope of AOC 11e following a January 2010 rain event. Sample AOC11e-6 was collected of this white material. This area is located on the steep slope below the northeastern portion of the TCS and may represent native materials. This area is not accessible by equipment.

The white material is no longer present and is likely a result of an evaporite deposit following the rain event. A similar white material area was also observed above AOC 1 and AOC 10, at a similar elevation following the same rain event. This white material found upslope near AOC11e-6 appears to be different than the white powder associated with water softener sludge found in low-lying areas around the TCS.

Several thin layers of white powder resembling water softener sludge and rust-colored oxidized lenses of material were encountered within area AOC 11e during the NTCRA. Elevated concentrations of metals and dioxins and furans were associated with these layers. The presence of layers indicate historical discharges from the TCS were likely impounded behind the check berm.

AOC 11f captures a portion of runoff originating from the TCS that flows down the TCS access road. AOC 11f also contains an area where fire training operations were reported to occur. According to former employee interviews, fire training exercises were conducted near the location of the current decontamination pad and Transwestern Meter Station. Materials that were burned during fire training exercises consisted primarily of scrap wood. Fire drills were reportedly later expanded to include extinguishing diesel fires in a 55-gallon drum. Miscellaneous debris (concrete and other material) are located in the drainage north of 11f.

AOC 11g is located between the TCS access road and the Colorado River, north of the Route 66 sign. AOC 11g may have received runoff from the TCS access road.

4.1.5.3 Topock Soil NTCRA

NTCRA AOC 11 TAA 1 was identified for AOC 11e. Approximately 750 yd^3 of soil were removed from AOC11 TAA 1. The extent of excavation was expanded until the metals and dioxins and furans concentrations in excavation floor and sidewall samples were less than the NTCRA RAGs. The extent of excavation is shown on Figures 3-7a through 3-7o and in Appendix H.

The NTCRA removal has removed most of the soil represented by the AOC 11e area. Most of the RFI/RI soil samples no longer represent current Site conditions, as described in Section 4.1.5.5. Appendix H provides validated analytical data from the NTCRA.

4.1.5.4 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. General lithologic descriptions for AOC 11 are provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 11a comprises an approximately a 0.5-foot- to 1-foot-thick layer of silt overlaying a relatively homogeneous layer of silty sand with approximately 10 to 20% gravel, 20 to 30% sand, and 60% silt. Borings were advanced to a maximum depth of 10 feet bgs at AOC 11a.

The soil at AOC 11b comprises a unit of gravelly silt, with approximately 50% gravel and cobbles, and 50% silt. Lithology was recorded to a maximum depth of 10 feet bgs at AOC 11b.

The soil at AOC 11c comprises varying amounts of sand, silt, and gravel. At AOC11c-3, a unit of predominantly sand was logged from 0 foot to 45 feet bgs, with silt content increasing with depth. Boring logs at locations AOC11c-1 and AOC11c-2 noted an approximately 3.5-foot- to 7-foot-thick layer of silt overlaying a gravelly silt unit comprising approximately 20 to 25% gravel, 15 to 20% sand, and 55 to 65% silt; both borings were advanced to 10 feet bgs. At boring location AOC11c-4, a unit of silty gravel with sand was logged from 0 foot to 25 feet bgs, with approximately 50 to 60% gravel and 40 to 50% fine sand and silt.

One boring was advanced to 10 feet bgs at AOC 11d. The soil comprises an approximately 2.5-foot-thick layer of silt overlaying sandy silt with gravel and cobbles.

The soil at AOC 11e comprises silt, sand, gravel, and cobbles, with gravel and cobble content generally increasing with depth up to approximately 70%. At boring AOC11e-5, approximately 10% clay was observed mixed into the unit from 18 feet to 80 feet bgs. At AOC11e-5, the water table was encountered at 72 feet bgs. Borings at AOC 11e were advanced to a maximum depth of 80 feet bgs. During the NTCRA, several thin layers of white powder and oxidized rust-colored soil were encountered.

The soil at AOC 11f comprises a unit of lean silt overlaying a unit of poorly graded sand with gravel. The lean silt unit ranges from 8.5 feet thick at the southern boundary of the unit to 1 foot thick at the northern boundaries. The poorly graded sand unit is relatively homogeneous, with 10% gravel and 90% sand, with silt becoming more prevalent at the northern end of AOC 11f.

The soil at AOC 11g comprises a unit of silty sand, with approximately 10% gravel, 80% sand, and 10% silt. Bedrock refusal was encountered at 7 feet bgs at boring location AOC11-7.

Descriptions of staining and debris observed in samples collected at AOC 11 are as follows:

- At boring location AOC11a-1, old pieces of asphalt were encountered at approximately 8 feet bgs.
- Two potholes were advanced to 10 feet bgs at AOC 11b, and debris consisting of the following materials were encountered in both potholes:
  - Metal
  - Ceramic plates
  - Glass resistors
  - Cement

  In addition, spherical refractory bricks and a leaded fuel placard or label were located within the debris. Lead and zinc exceeded ISLs at multiple depths at sample locations AOC11b-1 and AOC11b-2.
- A “thin white layer” was observed at approximately 1 foot bgs at pothole location AOC11e-2. Thin white layers were also encountered within AOC11e during the NTCRA at varying depths between 1 foot and 4 feet bgs.
- At boring location PA-12, located along the TCS fence line near AOC11e, concrete debris was observed from 3 feet to 6 feet bgs.
- At boring location PA-11, located near boring AOC11e-3, rust staining was observed in soil from 0 foot to 6 feet bgs. Oxidized rust-colored soil layers were also encountered within AOC11e during the NTCRA at varying depths between 1 foot and 4 feet bgs.

4.1.5.5 Analytical Results

Appendix B summarizes general field and sample collection methods. Tables 3-7a through 3-7j provide analytical results for AOC 11, and Figures 3-7a through 3-7o show the sampling locations.

This section provides a discussion about the screening level exceedances. Section 4.1.5.6 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Samples were collected from 56 locations at depths ranging from 0 foot to 70 feet bgs. The ISLs were exceeded for one or more of the flowing metals at locations across AOC 11:

- Arsenic (BK)
- Barium (BK)
- Cadmium (BK)
- CrVI (BK)
- CrT (BK)
- Copper (BK)
- Lead (BK)
- Mercury (ECV)
- Molybdenum (BK)
- Selenium (BK)
- Vanadium (BK)
- Zinc (BK)

The metals most frequently detected exceeding the ISL were as follows (Table 3-7a and Figures 3-7a through 3-7g):

- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Zinc

The greatest concentrations were generally found along the slope below the TCS eastern fence line and within AOCs 11c and 11e. Exceedances are described as follows:

- CrVI was detected exceeding its ISL (0.83 mg/kg) in 29 samples taken from depths between 0 foot and 10 feet bgs (Table 3-7a). The greatest CrVI concentration of 16 mg/kg was detected at sample location AOC11e-6 at the surface to 1 foot bgs. Sample location AOC11e-6 was collected on the slope below AOC 6 (Figure 3-7b).
- CrT was detected exceeding its ISL (39.8 mg/kg) in 22 samples taken from depths between 0 foot and 20 feet bgs (Table 3-7a). The greatest CrT concentration of 320 mg/kg was detected at sample location AOC11e-6 at the surface to 1 foot bgs. Sample location AOC11e-6 was collected on the slope below AOC 6 (Figure 3-7c).
- Copper was detected exceeding its ISL (16.8 mg/kg) in 28 samples taken from depths between 0 foot and 15 feet bgs (Table 3-7a). The greatest copper concentration of 44 mg/kg was detected at sample location SD-11A at 2 feet to 3 feet bgs. Sample location SD-11A was collected near the outfall of an inactive storm drain line (Figure 3-7d).

- Lead was detected exceeding its ISL (8.39 mg/kg) in 58 samples taken from depths between 0 foot and 10 feet bgs (Table 3-7a). The greatest lead concentration of 220 mg/kg was detected at sample location AOC11-7 at the surface to 1 foot bgs. Sample location AOC11-7 was collected in a topographic low point to the east of the TCS access road in an area the receives runoff from the access road and the former railroad route (Figure 3-7e).
- Molybdenum was detected exceeding its ISL (1.37 mg/kg) in 17 samples taken from depths between 0 foot and 20 feet bgs (Table 3-7a). The greatest molybdenum concentration of 7.1 mg/kg was detected at sample location AOC11g-OS1 at 8.5 feet to 9 feet bgs. Sample location AOC11g-OS1 was collected along the TCS access road (Figure 3-7f).
- Zinc was detected exceeding its ISL (58 mg/kg) in 58 samples taken from depths between 0 foot and 10 feet bgs (Table 3-7a). The greatest zinc concentration of 1,100 mg/kg was detected at sample location SD-11 at the surface to 0.5 foot bgs. Sample location SD-11 was collected near the outfall of inactive Storm Drain Line 8 (Figure 3-7g).

NTCRA excavation at AOC 11 removed soil from Subarea AOC 11e. Because of this excavation, most RFI/RI soil sample results from the AOC11e area no longer represent current Site conditions. The extent of excavation was expanded until the excavation floor and sidewall samples had metals and dioxin and furan concentrations less than the NTCRA RAGs. Although excavated areas are not defined to Part A ISLs, the soil remaining in place at AOC11e meets the NTCRA RAG and will be reevaluated in the updated risk assessment after the NTCRA is complete.

The lateral extents of the exceedances have been defined by samples with results less than ISLs and topographical features, except at AOC11-6 through AOC11-9 where lead and zinc exceeded their respective BK values and ISLs. The exceedances for zinc and lead were less than their respective RBCs. Although the lateral extent of zinc and lead exceedances is not defined to the ISLs in the vicinity of AOC 11g, the exceedances do not present an unacceptable risk to receptors. Therefore, the lateral extent of lead and zinc are not considered data gaps that require filling.

The vertical extents of metal exceedances have been defined for most areas by samples with results less than ISLs or concentrations decreasing with depth.

Vertical extent is not defined for the following compounds:

- Barium in the vicinity of AOC 11a (concentrations are less than the RBC, but are increasing with depth at AOC11a-4 and AOC11a-5).
- CrVI concentrations at SD-08, SD-10, AOC11-4 (2 feet to 3 feet bgs), and AOC11a-1 (9 feet to 10 feet bgs) are less than the RBRG (3.1 mg/kg); therefore, they do not pose an unacceptable risk to receptors. However, concentrations are either increasing with depth or increasing from ND in shallow samples to greater than the ISL in the deepest sample.
- CrVI concentration at AOC11e-6 (0 foot to 1 foot bgs) is greater than the ISL and RBRG. Only a surface sample was collected.
- Copper concentrations at SD-08 (2 feet to 3 feet bgs) are less than the RBC, but concentrations increase with depth.
- Before implementation of the NTCRA, copper concentration at AOC11e-4 (14 feet to 15 feet bgs) was considered undefined vertically, as the concentration increased with depth. AOC11e-4 and the surrounding area was excavated as part of the NTCRA. NTCRA excavation was to approximately 7 to 10 feet in the AOC 11e subarea, which is shallower than the vertical extent data gap at AOC11e-4 (15 feet bgs). Additionally, although the excavation floor soil samples had copper concentrations less than the NTCRA RAG (145 mg/kg), NTCRA confirmation floor and wall soil samples collected in the vicinity of AOC11e-4 had copper concentrations exceeding the Part A ISL (16.8 mg/kg) (Appendix H). As such, NTCRA activities have not defined the vertical extent of copper at AOC11e-4 to the ISL. However, the soil remaining in place at AOC11e meets the NTCRA RAG and will be reevaluated in the updated risk assessment after the NTCRA is complete.

- Lead concentrations at SD-10 (2 feet to 3 feet bgs) are less than the RBC (36 mg/kg) and do not pose an unacceptable risk to receptors, but concentrations increase with depth.
- Mercury at SD-10 (2 feet to 3 feet bgs) increases from ND at the surface to greater than the ISL in the deepest sample (2 feet to 3 feet bgs). The ISL for mercury is low (0.0125 mg/kg) and well less than the ecological RBC (1 mg/kg) and human health recreator RBC (270 mg/kg). Although the mercury concentration in the deepest sample does not pose an unacceptable risk to receptors, concentrations increase with depth.
- Molybdenum at AOC11g-OS1 (8.5 feet to 9 feet bgs) and in the vicinity of AOC 11a (AOC11a-SS-3 and AOC11a-5) increase with depth, or trends are unknown:
  - AOC11g-OS1 was an opportunistic sample collected during station activities; deeper samples were not collected.
  - The molybdenum concentrations at these locations are less than the RBC and do not pose an unacceptable risk to receptors. However, concentrations increase with depth (AOC11a-SS-3 and AOC11a-5), or trends with depth are unknown (AOC11g-OS1).
- Zinc increases with depth, or trends are unknown at the following locations:
  - SD-10 (2 feet to 3 feet bgs)
  - SD-08 (2 feet to 3 feet bgs)
  - AOC11g-OS1 (opportunistic sample with only 1 depth sampled from 8.5 feet to 9 feet bgs)
  - AOC11-7 (9 feet to 10 feet bgs)

  The zinc concentrations at these locations are well less than the RBC and do not pose an unacceptable risk to receptors. However, concentrations increase with depth (SD-10, SD-08, and AOC11-7), or trends with depth are unknown (AOC11g-OS1).

AOC 11 is recommended to be considered for inclusion in the CMS/FS.

Three additional samples were collected from AOC 11 during groundwater remedy construction (AOC11f-GRBS-PLF-BOT, AOC11-GRBS-IRZ-39, AOC11-GRBS-MW-K) (Appendix F, Table F-1a). One sample slightly exceeded the ISL for lead (8.39 mg/kg) at 8.7 mg/kg (AOC11f-GRBS-PLF-BOT).

CLP Inorganics: Samples were collected from 16 locations at depths ranging from 0 foot to 3 feet bgs. The ISLs were exceeded for one or more compounds in locations across AOC 11:

- Aluminum (BK)
- Manganese (BK)
- Potassium (BK)
- Sodium (BK)

The analytes detected exceeding their respective ISLs in more than 1 sample were as follows, as shown in Table 3-7b:

- Aluminum was detected exceeding its ISL (16,400 mg/kg) in 2 samples taken from depths between 0 foot and 0.5 foot bgs (Table 3-7b). The greatest aluminum concentration of 20,000 mg/kg was detected at sample location AOC11a-2 at the surface to 0.5 foot bgs. Sample location AOC11a-2 was collected in a topographic low point that received runoff from I-40.
- Potassium was detected exceeding its ISL (4,400 mg/kg) in 2 samples taken from depths between 0 foot and 0.5 foot bgs (Table 3-7b). The greatest potassium concentration of 5,300 mg/kg was detected at sample location AOC11d-1 at the surface to 0.5 foot bgs. Sample location AOC11d-1 was collected in a topographic low point near the Transwestern Meter Station and received runoff from the TCS.
- Sodium was detected exceeding its ISL (2,070 mg/kg) in 2 samples taken from depths between 0 foot and 3 feet bgs (Table 3-7b). The greatest sodium concentration of 4,300 mg/kg was detected at sample location AOC11e-6 at the surface to 1 foot bgs. Sample location AOC11e-6 was collected on the slope below AOC-6.

The lateral extents of the exceedances have been defined by samples with results less than ISLs, not detected greater than reporting limits, or by topographical features. The vertical extent of the exceedances has not been defined; however, the detected CLP inorganics results are only slightly greater than (2.1 times or less) their respective ISLs. CLP inorganics are not compounds driving risk; therefore, the minor exceedances of BK values of CLP inorganics at AOC 11 are not considered a data gap requiring further investigation.

Two additional samples were collected from AOC 11 during groundwater remedy construction (AOC11f-GRBS-PLF-BOT, AOC11-GRBS-IRZ-39) (Appendix F, Table F-1b). There were no exceedances of ISLs.

PAHs: Samples were collected from 56 locations at depths ranging from 0 foot to 70 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. The ISLs for B(a)P equivalents (RRSL) and HMW PAHs (ECV) were exceeded at one or more locations, as shown in Table 3-7c and on Figures 3-7h and 3-7i. The greatest concentrations of PAHs were mostly found below the TCS fence line and in AOCs 11e, 11c, and 11b, as follows:

- B(a)P equivalent was detected exceeding its ISL (110 µg/kg) in 16 samples taken from depths between 0 foot and 6 feet bgs (Table 3-7c). The greatest B(a)P equivalent concentration of 2,300 µg/kg was detected at sample location PA-10 at the surface to 1 foot bgs. Sample location PA-10 was a perimeter sample collected near eastern the TCS fence line (Figure 3-7h).
- HMW PAH was detected exceeding its ISL (1,160 µg/kg) in 10 samples taken from depths between 0 foot and 6 feet bgs (Table 3-7c). The greatest HMW PAH concentration of 18,180 µg/kg was detected at sample location PA-10 at the surface to 1 foot bgs. Sample location PA-10 was a perimeter sample collected near the eastern TCS fence line (Figure 3-7i).

The lateral and vertical extents of the exceedances have been defined by samples with results less than ISLs, not detected greater than reporting limits, or by topographical features.

Three additional samples were collected from AOC 11 during groundwater remedy construction (AOC11f-GRBS-PLF-BOT, AOC11-GRBS-IRZ-39, AOC11-GRBS-MW-K) (Appendix F, Table F-1c). There were no exceedances of ISLs.

VOCs and SVOCs: Samples were collected from 9 locations at depths ranging from 2 feet to 3 feet bgs. Methyl acetate was the only organic detected greater than laboratory reporting limits. No samples had detected results that exceeded their respective ISLs (Table 3-7d).

TPH: Samples were collected from 45 locations at depths ranging from 0 foot to 10 feet bgs (Table 3-7e and Figure 3-7j). The ISL for TPH-d (ESL) was exceeded at 2 locations: SD-11 and SD-11A. Samples SD-11 and SD-11A were collected on the slope below the eastern TCS fence line.

The lateral extent of the exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits. The vertical extent of exceedances has been defined at all locations except SD-11A, where the deepest sample slightly exceeded the ISL. This minor exceedance is not considered a data gap requiring further investigation because the concentrations decreased from the 2-foot to 3-foot bgs sample to the 5-foot to 6-foot bgs sample. Additionally, all concentrations at SD-11A are less than the RBC for TPH-d (5,700 mg/kg) and do not present an unacceptable risk to receptors.

Three additional samples were collected from AOC 11 during groundwater remedy construction (AOC11f-GRBS-PLF-BOT, AOC11-GRBS-IRZ-39, AOC11-GRBS-MW-K) (Appendix F, Table F-1d). There were no exceedances of ISLs.

General Chemistry: Samples were collected from 28 locations at depths ranging from 0 foot to 10 feet bgs. ISLs were not established for general chemistry parameters.

Pesticides: Samples were collected from 14 locations at depths ranging from 0 foot to 70 feet bgs (Table 3-7g). The ISLs for 4,4-DDE (ECV) and dieldrin (ECV) were exceeded in 1 sample, AOC11d-1, from 0 foot to 0.5 foot bgs. Sample location AOC11d-1 was collected in a topographic low point near the Transwestern Meter Station.

The lateral and vertical extents of the exceedances have been defined by samples with results less than ISLs or not detected greater than reporting limits.

PCBs: Samples were collected from 35 locations at depths ranging from 0 foot to 70 feet bgs. PCBs were evaluated as individual Aroclors and as total PCBs. The ISLs for Aroclor 1254 (RRSL), Aroclor 1260 (RRSL), and total PCBs (ECV) were exceeded at one or more locations, as shown in Table 3-7h and on Figure 3-7k and 3-7l. The greatest concentrations of PCBs were found below the TCS fence line, as follows:

- Aroclor 1254 was detected exceeding the ISL (240 µg/kg) in 8 samples taken from depths between 0 foot and 6 feet bgs (Table 3-7h). The greatest concentration of 1,600 µg/kg was detected at sample location SD-OS37 at the surface to 0.5 foot bgs. Sample location SD-OS37 was collected along the eastern TCS fence line (Figure 3-7k).
- Aroclor 1260 was detected exceeding the ISL (240 µg/kg) in 4 samples taken from depths between 0 foot and 6 feet bgs (Table 3-7h). The greatest concentration of 1,000 µg/kg was detected at sample location SD-11A at the surface to 1 foot bgs. Sample location SD-11A was collected near the outfall of Storm Drain Line 8.
- Total PCBs were detected exceeding the ISL (204 µg/kg) in 10 samples taken from depths between 0 foot and 6 feet bgs (Table 3-7h). The greatest concentration of 1,927 µg/kg was detected at sample location SD-OS37 at the surface to 0.5 foot bgs. Sample location SD-OS37 was collected along the TCS fence line (Figure 3-7l).

The lateral extents of the exceedances have been defined by samples with results less than ISLs or not detected greater than reporting limits. The vertical extents of the exceedances have been defined by samples with results less than ISLs, except at SD-11A where total PCBs exceeded its ISL in the deepest sample. PCBs and total PCBs concentrations are decreasing with depth at SD-11A, and all concentrations at SD-11A are less than the RBC for Total PCBs (1,400 µg/kg) and do not present an unacceptable risk to receptors. Therefore, this data gap does not warrant further investigation.

Three additional samples were collected from AOC 11 during groundwater remedy construction (AOC11f-GRBS-PLF-BOT, AOC11-GRBS-IRZ-39, AOC11-GRBS-MW-K) (Appendix F, Table F-1g). There were no exceedances of ISLs.

Dioxins and Furans: Samples were collected from 33 locations at depths ranging from 0 foot to 10 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ avian (ECV), TEQ human (RRSL), and TEQ mammals (ECV) were exceeded at one or more locations, as shown in Table 3-7i and Figures 3-7m through 3-7o. The greatest concentrations of dioxins and furans were detected below the TCS fence line and at AOC 11e, as follows:

- TEQ avian exceeded the ISL (16 ng/kg) in 20 samples taken from depths between 0 foot and 10 feet bgs (Table 3-7i). The greatest TEQ avian concentration of 2,200 ng/kg was detected at sample location AOC11e-1 at 2.5 feet to 3 feet bgs. Sample location AOC11e-1 was collected on the slope below AOC-6 (Figure 3-7m).
- TEQ human exceeded the ISL (50 ng/kg) in 18 samples taken from depths between 0 foot and 10 feet bgs (Table 3-7i). The greatest TEQ human concentration of 3,200 ng/kg was detected at sample location AOC11e-1 at 2.5 feet to 3 feet bgs. Sample location AOC11e-1 was collected on the slope below AOC-6 (Figure 3-7n).
- TEQ mammal exceeded the ISL (5.58 ng/kg) in 34 samples taken from depths between 0 foot and 10 feet bgs (Table 3-7i). The greatest TEQ mammal concentration of 3,200 ng/kg was detected at sample location AOC11e-1 at 2.5 feet to 3 feet bgs. Sample location AOC11e-1 was collected on the slope below AOC-6 (Figure 3-7o).

NTCRA excavation at AOC 11 removed soil from Subarea AOC 11e. Because of this excavation, some RFI/RI soil sample results no longer represent current Site conditions. The extent of excavation was expanded until the excavation floor and sidewall samples had metals and dioxin and furan concentrations less than the NTCRA RAGs. Excavated areas may not be defined to Part A ISLs and will be reevaluated in the updated risk assessment after the NTCRA is complete.

The lateral extent of TEQ avian and human exceedances have been defined by samples with results less than the RRSL, not detected greater than reporting limits, or by topographical features.

The vertical extent of TEQ avian and human exceedances has been defined by samples with results less than ISLs or not detected greater than reporting limits, except for the samples collected at PA-11 and SD-11A. TEQ avian and human concentrations decrease with depth at SD-11A, but increase with depth at PA-11. PA-11 is recommended to be considered for inclusion in the CMS/FS.

Before implementation of the NTCRA, TEQ avian and human exceeded ISLs at AOC11e (AOC11e-1, AOC11e-2, and AOC11e-4). Soil was excavated to approximately 7 to 10 feet in AOC 11e during the NTCRA. Although the excavation floor and wall soil samples had TEQ human and avian concentrations less than the NTCRA RAGs (100 to 190 ng/kg), results are greater than the Part A ISLs (16 ng/kg TEQ avian, 50 ng/kg TEQ human) in about half of the soil samples (Appendix H provides the soil NTCRA analytical results). As such, NTCRA activities have not defined the vertical extent of dioxins and furans to ISLs at subarea AOC 11e. However, the soil remaining in place at AOC11e meets the NTCRA RAGs and will be reevaluated in the updated risk assessment after the NTCRA is complete.

The lateral and vertical extents of the TEQ mammal exceedances have not been defined by samples with results less than ISLs or not detected greater than reporting limits. These exceedances of the ISLs do not represent a data gap requiring further investigation because the TEQ mammal ISL (5.58 ng/kg) is the most conservative screening level for dioxin TEQ. Further investigation to assess the vertical extent of TEQ mammal is not warranted.

Two additional samples were collected from AOC 11 during groundwater remedy construction (AOC11f-GRBS-PLF-BOT, AOC11-GRBS-IRZ-39) (Appendix F, Table F-1b). There were no exceedances of TEQ avian or human ISLs.

4.1.5.6 AOC 11 Conceptual Site Model

Figure 4-5 is a graphical CSM developed for AOC 11 based on the Site history, background, and newly identified areas. Exhibit 4-9 presents the following information for AOC 11:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part A DQOs TM (CH2M 2010), and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination to AOC 11 are:

- Run off and discharge from the TCS
- Run off from the access road to the TCS
- Runoff from the Transwestern Meter Station area
- Runoff from I-40

Exhibit 4-9. Conceptual Site Model – AOC 11
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Medium	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Runoff from TCS, TCS access road, Transwestern Meter Station area, and I-40 **COPCs include:** • Metals • PCBs • PAHs	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion • Potential discharge of groundwater to surface water [a]	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals
Discharge from TCS via stormwater drains **COPCs include:** • Metals • CrVI • CrT	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion • Potential discharge of groundwater to surface water [a]	
Disposal of Debris **COPCs include:** • Metals • PCBs • PAHs	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion • Potential discharge of groundwater to surface water [a]	
Burned Material **COPCs include:** • Dioxins and furans	• Surface Soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil	

[a] Discharge to surface water is an insignificant transport pathway as evaluated in the groundwater risk assessment (Arcadis 2009c).

Multiple storm drains discharge to this area, and several former storm drains are believed to have discharged to this area in the past. Cooling water may have initially been released to AOC 11 through the storm drain system. Apparent historical discharges from the TCS conveyed by storm drains were impounded behind the check berm at AOC11e. Several thin layers of white powder, assumed to be water softener sludge, and rust-colored oxidized lenses of material encountered within area AOC 11e contained elevated concentrations of metals and dioxins and furans.

Sheet flow surface runoff from the TCS could also have entered this unit from areas where the edge of the TCS lacked curbs. Potential releases from railroad debris below the TCS access road may also contribute to contamination at AOC 11 from the following types of debris observed during 2008 field activities:

- Asphalt
- A metal sign
- Ceramic plates
- Glass resistors
- Concrete

The presence of the following analytes may be related to runoff from the TCS and access road and stormwater discharge:

- Wear metals, including:
  - Copper
  - Zinc
  - Lead
- PAHs
- PCBs

The presence of the following analytes may be related to the potential release of cooling water via the storm drain system:

- CrVI
- CrT
- Molybdenum

The distribution of contamination at the Site is consistent with drainage and stormwater flows from the TCS.

The source of dioxins and furans within AOC 11e is not known with certainty, but the association with the layered deposits suggests they were derived from the historical discharges of wastewater.

Stormwater runoff from I-40 could have also resulted in the release of the following analytes into AOC 11, especially AOC Subarea 11a, that are not a result of TCS activities:

- PAHs
- Lead
- Wear metals and galvanized coatings, including:
  - Barium
  - Chromium
  - Copper
  - Nickel
  - Zinc

Runoff from the various potential source areas would have discharged to surface soil and collected in low areas within the AOC. Therefore, the primary source medium is surface soil. From surface soil, contaminants could have migrated to shallow and deeper soils. Shallow soils may act as a secondary source medium to subsurface soil, and subsurface soil may act as a secondary source medium to groundwater. After storm events, water pools in AOC 11a (the largest topographic low area) and does not readily infiltrate. Historically, water may have also pooled behind the two check berms in AOCs 11c and 11e.

Although these structures have been breached and no longer retain water, accumulated fine-grained soils are present behind the berm at AOC 11c. Laterally, COPCs or COPECs in soil would generally be expected to be limited to the area along the topographic drainages. With the exception of Subarea 11g, all of the low points within this unit are terminal low points, and flow cannot exit the AOC 11 area. At these low points, contaminants could potentially be driven deeper and could potentially reach groundwater; however, migration to groundwater has been ruled out by vadose zone modeling. The analytical results for AOC 11 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time. Runoff down the TCS access road periodically reaches Subarea 11g. A significant volume of flow may result in runoff over the Subarea 11g bank and down the slope toward the Colorado River.

COPCs in surface soil may also be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 11, this migration may result in COPCs at the top of the hillside near the TCS fence line or the vicinity of the Transwestern Station migrating to various subareas within AOC 11. For example, migration could occur from the TCS to AOC 11e, AOC 11c, and AOC 11a, or from the TCS Access Road to AOC 11 g, and continuing down the slope toward the Colorado River (Figure 4-5).

Another potential source of contamination to AOC 11 may also include contaminated windblown dust. Contaminated surface soil (either within AOC 11 or from the adjacent TCS) may have been eroded by wind and deposited at the ground surface within AOC 11.

4.1.5.7 Evaluation of Data Against Data Quality Objectives for AOC 11

This section discusses the evaluation of data against DQOs for AOC 11.

Decision 1 (Nature and Extent Determination): Nature and extent have not been sufficiently defined vertically for the following compounds and associated areas:

- Barium, CrVI, or molybdenum in the vicinity of AOC 11a, including:
  - AOC11a-1
  - AOC11a-4
  - AOC11a-5
  - AOC11a-SS-3
- CrVI, copper, lead, mercury, or zinc on the slope below the eastern compressor fence line, including:
  - SD-08
  - SD-10
  - AOC11e-6
- Molybdenum and zinc along the TCS access road upgradient of AOC 11g; this opportunistic sample was collected during maintenance and construction activities; therefore, deeper samples could not be collected
- Zinc in the vicinity of AOC 11g (AOC11-7)
- Dioxins and furans on the slope below the eastern compressor fence line (PA-11)

Areas and sample locations in AOC 11 with data gaps shall be considered for inclusion in the CMS/FS. Subarea AOC 11e was an NTCRA TAA, soil with metals and dioxins and furans concentrations exceeding the NTCRA RAGs was removed. AOC 11 will be reevaluated in the updated risk assessment when the NCTRA is complete.

Tables 3-7a through 3-7i and Figures 3-7a through 3-7o present the analytical results. Table 3-7j provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 195 samples were collected from 55 locations ranging from 0 foot to 70 feet bgs for AOC 11. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry parameters
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and/or IMs. The following data gap was identified in the Soil RFI/RI Work Plan:

- Soil physical parameters to support the CMS/FS
- Volume and extent of debris in new Subareas 11f and 11g, including the potential burn area within Subarea 11f, and volume and extent of white powder material on the upper slope of AOC 11e, if applicable

During implementation of the Soil RFI/RI Work Plan, soil characteristics samples were collected at the following locations in AOC 11: AOC11c and AOC11e. Table 3-37 presents the results. At the time of sampling, the following debris was noted in AOC 11f and 11g:

- Subarea 11f:
  - Minor trash
  - Cans
  - Metal
  - Cement

- Subarea 11g:
  - Trash from roadway
  - Cement

No white powder was present in AOC 11e at the time of sampling. These data and observations address the data gap identified in the Soil RFI/RI Work Plan and, along with the nature and extent data collected, are sufficient to support CMS/FS and/or IMs.

4.1.6 AOC 12 – Fill Areas

This section provides details about AOC 12 – Fill Areas.

4.1.6.1 Setting

AOC 12 consists of three subareas located near the Transwestern Meter Station east of the TCS, as shown on Figure 2-1. These three subareas were identified through employee interviews as locations that may contain buried debris:

- AOC 12a, located on property owned by HNWR
- AOC 12b, located on PG&E property
- AOC 12c, located on both HNWR and PG&E property

4.1.6.2 Unit History

AOC 12a was initially the only disposal area identified in AOC 12. AOC 12a was reportedly a disposal area for construction-related debris; a few small pieces of concrete are visible at the surface in this area. The exact nature of the materials placed into this area and the dates of placement are unknown.

Two potential disposal locations were subsequently identified from interviews with former employees, as described in the Soil Part A Work Plan (CH2M 2006). There is no visible debris at these two sites. These two locations are adjacent to the northwestern corner (AOC 12b) and southwestern corner (AOC 12c) of the Transwestern Meter Station. Location 12b reportedly was used to bury ACM and two drums of unused unknown chemicals. Location 12c was apparently a small ravine (about 6 feet deep) that was reportedly used to bury ACM and possibly other debris.

Because debris reportedly was buried at AOCs 12a, 12b, and 12c, a geophysical survey was conducted over those areas. Part A Phase 1 trenches were excavated, and soil samples were collected in the areas where former PG&E employees indicated debris had been buried.

Excavation of soil in and around AOC 12c was conducted in January 2023 because of green-stained material with elevated levels of metals and dioxins and furans. Approximately 20 yd^3 of soil was removed and disposed of offsite. Two confirmation soil samples were collected from the excavation floor and wall; soil concentrations were less than the Topock soil management screening levels. Appendix I provides additional details about the 2023 AOC 12c excavation.

4.1.6.3 Geophysical Survey Results and Field Observations

Before the 2008 trenching activities, a geophysical survey was performed at each AOC 12 subarea to attempt to locate buried debris. The results of the survey found two linear features crossing AOC 12a, a natural gas pipeline approximately 3 to 4 feet in diameter, and an anode flux wire associated with the pipeline, buried between the upper 1 foot bgs and 3 feet to 4 feet bgs. In AOC 12a and AOC 12b, results indicated two undifferentiated utilities extending east from AST bunker pipe stub-outs.

4.1.6.4 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. No boring logs are available for AOC 12. Section 4.1.5.3 provides the soil information from borings adjacent to AOC 12 in the lithology descriptions for AOC 11.

A series of five trenches were advanced at AOC 12a, 12b, and 12c. The soil in the trenches consisted of varying amounts of sand, silt, gravel, cobbles, and fill material; specifically:

- The soil at AOC 12a comprised sand with cobbles, with fine-grained material increasing with depth.
- The soil at AOC 12b was fill material comprising poorly graded sand with gravel.
- The soil at AOC 12c was fill material comprising sandy silt with gravel.

Appendix B, Attachment B2 provide trench logs showing detailed lithology.

Descriptions of debris observed in samples collected at AOC 12, and associated contamination, are as follows:

- During the trenching activities, debris was observed in only one trench, AOC12c-T1.
- Debris consisted of the following types (CH2M 2012):
  - A large piece of concrete (at approximately 1.5 feet bgs)
  - A small piece of wire (at approximately 5 feet bgs)
  - An 18-inch wooden slat
  - Plastic debris
  - A cover from a polyethylene drum

4.1.6.5 Analytical Results

Metals: Samples were collected from 11 locations at depths ranging from 0 foot to 11 feet bgs. The ISLs were exceeded for one or more of the following metals at locations across AOC 12 (Table 3-8a and Figures 3-7a to 3-7g):

- Cobalt (BK)
- Copper (BK)
- Selenium (BK)
- Zinc (BK)

Exceedances are described as follows:

- Cobalt was detected slightly exceeding its ISL (12.7 mg/kg) in 1 sample with a concentration of 14 mg/kg at sample location AOC12b-T1a at 2 feet to 3 feet bgs (Table 3-8a). Sample location AOC12b-T1a was collected in the southern portion of the trench in area AOC12b.

- Cooper was detected slightly exceeding its ISL (16.8 mg/kg) in 1 sample with a concentration of 18 mg/kg at sample location AOC12b-T1a at 2 feet to 3 feet bgs (Table 3-8a). Sample location AOC12b-T1a was collected in the southern portion of the trench in area AOC12b (Figure 3-7d).

- Selenium was detected slightly exceeding its ISL (1.47 mg/kg) in 1 sample with a concentration of 2.5 mg/kg at sample location AOC12b-T1b at 2 feet to 3 feet bgs (Table 3-8a). Sample locati3on AOC12b-T1b was collected in the northern portion of the trench in area AOC12b.

- Zinc was detected slightly exceeding its ISL (58 mg/kg) in 1 sample with a concentration of 77 mg/kg at sample location AOC12c-T1a at the surface to 0.5 foot bgs (Table 3-8a). Sample location AOC12c-T1a was collected in the southern portion of the trench in area AOC12c (Figure 3-7g).

The lateral extent of the exceedances has been defined by samples with results less than ISLs. The vertical extents of the exceedances have been defined for most metals and locations by samples with results less than ISLs. Cobalt, copper, and selenium slightly exceeded their respective ISLs in the deepest samples at AOC12b-T1a and AOC12b-T1b. Cobalt and copper concentrations at AOC12b-T1a are less than their respective RBCs and do not present an unacceptable risk to receptors. Selenium at AOC12b-T1b was detected at 2.5 mg/kg, slightly greater than the RBC (2.3 mg/kg). As selenium was not detected in any other samples at AOC 12, including the other location at subarea AOC 12b, the minor exceedance of selenium is not considered a data gap requiring further investigation.

CLP Inorganics: Samples were collected from 2 locations at depths ranging from 0 foot to 0.5 foot bgs. No samples had detected results that exceeded their ISLs (Table 3-8b).

PAHs: Samples were collected from 11 locations at depths ranging from 0 foot to 11 feet bgs. No samples had detected results that exceeded their ISLs (Table 3-8c).

TPH: Samples were collected from 11 locations at depths ranging from 0 foot to 11 feet bgs. No samples had detected results that exceeded their ISLs (Table 3-8e).

VOCs and SVOCs: Samples were collected from 11 locations at depths ranging from 0 foot to 11 feet bgs (Table 3-8d). The ISL for di-n-butyl phthalate (ECV, 46.9 µg/kg) was exceeded in 1 sample collected at AOC12c-T1c from 10 feet to 11 feet bgs (1,100 µg/kg). This is significantly less than the RSSL, 6,300,000 µg/kg. Sample location AOC12c-T1c was collected in the western portion of the trench in AOC 12c.

The lateral extents of the exceedances have been defined by samples with results less than ISLs. The vertical extents of the di-n-butyl phthalate exceedance has not been defined. This does not represent a data gap requiring further investigation because the detected results exceeded the ECV, but the sample was collected from 10 feet to 11 feet bgs, which is well below the ecological receptor range of 0 foot to 6 feet bgs. In addition, the detected result is well less than the human RSSL.

General Chemistry: Samples were collected from 11 locations at depths ranging from 0 foot to 11 feet bgs (Table 3-8f). ISLs were not established for general chemistry parameters.

Pesticides: Samples were collected from 2 locations at depths ranging from 0 foot to 0.5 foot bgs. No samples had detected results that exceeded their ISLs (Table 3-8g).

PCBs: Samples were collected from 2 locations at depths ranging from 0 foot to 3 feet bgs. No samples had detected results that exceeded their ISLs (Table 3-8h).

Asbestos: Samples were collected from 11 locations at depths ranging from 0 foot to 11 feet bgs. Bulk samples analyzed by polarized light microscopy indicated that asbestos fibers were not present or not detected in the AOC12 samples (Table 3-8i).

4.1.6.6 AOC 12 Conceptual Site Model

Minimal buried materials were encountered in the AOC 12 subareas. The buried debris reported by former employees, including drums and ACM, were not encountered during geophysical surveys, trenching, and soil samples. PAHs, TPH, PCBs, and pesticides were infrequently detected in AOC 12 soils samples; and all detections were less than the application ISLs. Similarly, metals were either not detected or detected less than BK levels, except for one exceedance each for the following analytes:

- Cobalt
- Copper
- Selenium
- Zinc (exceedances were less than 2 times the ISLs/BK levels)

As minimal buried debris was encountered, and COPCs were infrequently detected in soil samples, there is uncertainty about whether the correct location was investigated.

COPCs or COPECs, if present in fill material and buried waste that were not encountered during investigative activities, may have affected subsurface soil underneath the debris and laterally in the immediate vicinity of the debris. Therefore, subsurface soil would be the primary source medium. Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway, as shown in Exhibit 4-10, but is not expected.

4.1.6.7 Evaluation of Data Against Data Quality Objectives for AOC 12

This section discusses the evaluation of data against DQOs for AOC 12.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. The FOEs for cobalt, copper, and selenium, and the FOE and depth of exceedance of di-n-butyl phthalate do not represent data gaps that require further investigation. Tables 3-8a through 3-8i provide analytical results, and Figure 3-1 shows sample locations. Table 3-8j provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value.

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 18 samples were collected from 11 locations ranging from 0 foot to 11 feet bgs for AOC 12. **Decision 2 (Data Sufficiency for EPC Calculation):** No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are insufficient to support CMS/FS and IMs. Nature and extent were determined to be fully defined at the time of the Soil RFI/RI Work Plan, but additional data regarding Site-specific soil properties (soil physical parameters) may be required to support the CMS/FS (CH2M 2013a). Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

Additional Considerations: Based on the minimal debris encountered and infrequent detections of COPCs, there is uncertainty about whether the correct location was investigated.

Exhibit 4-10. Conceptual Site Model – AOC 12
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PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Disposal of buried debris **COPCs include:** • Metals	• Subsurface soil	• Percolation or infiltration	• Subsurface soil	• Potential volatilization and atmospheric dispersion	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.1.7 AOC 14 – Railroad Debris Site

This section provides details about AOC 14 – Railroad Debris Site.

4.1.7.1 Setting

AOC 14, the Railroad Debris Site, is located approximately 1,000 feet north of the TCS, as shown on Figure 2-1 and Figures 4-6a through 4-6h, and is currently bounded as follows:

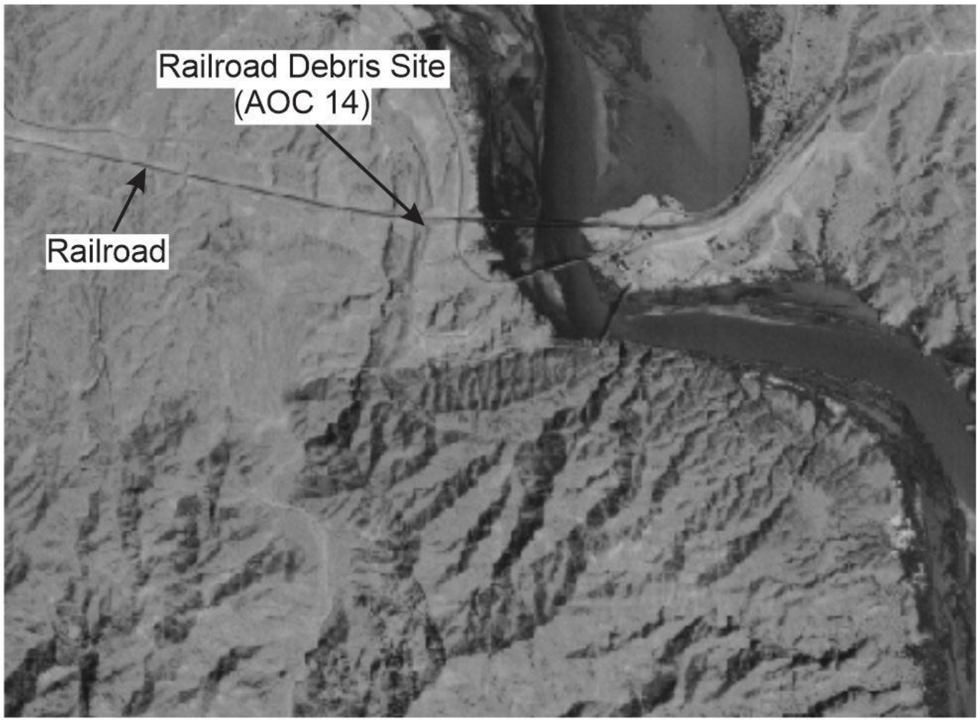
- By the BNSF railway tracks to the north
- By I-40 to the south
- By Bat Cave Wash to the west
- By a former access road to the east

AOC 14 is approximately 100 feet above the bottom of Bat Cave Wash.

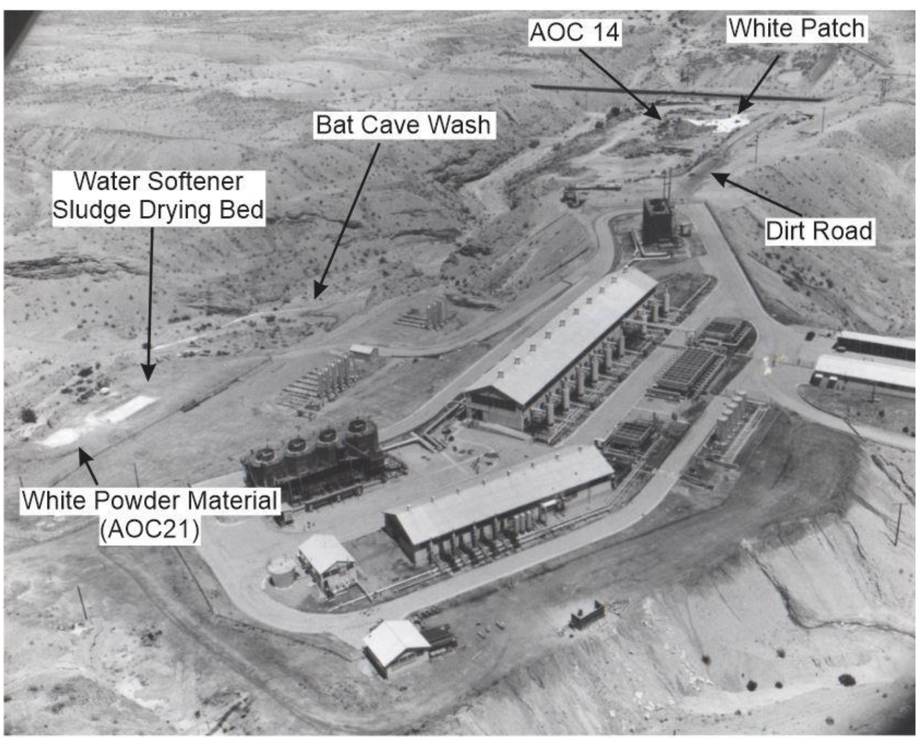
The Railroad Debris Site is approximately 1.5 acres in area and first appears in an aerial photograph dated 1947 (Photograph 4.1.7-1), before the establishment of the TCS. In that photograph, a mound of soil presumed related to construction of the rail line is present on the Site. In subsequent aerial photographs dated 1955 (Photographs 4.1.7-2 and 4.1.7-3), a white patch and other materials are present on this Site. A dirt road that runs from the northern end of the TCS to this area is also visible on the 1955 aerial photographs.

In the same photographs, a white patch can be seen on the ground adjacent to the sludge drying beds (SWMU 5). The white powder is likely dehydrated lime (water-softening) sludge from the Permutit water conditioning system. Former PG&E employees report that the water-softening sludge from the TCS was trucked to the Railroad Debris Site and discharged on the ground (CH2M 2006). Former PG&E employees also report AOC 14 was used for dumping of TCS waste and garbage burning until I-40 was built in the 1960s. AOC 14 contains miscellaneous construction debris, including:

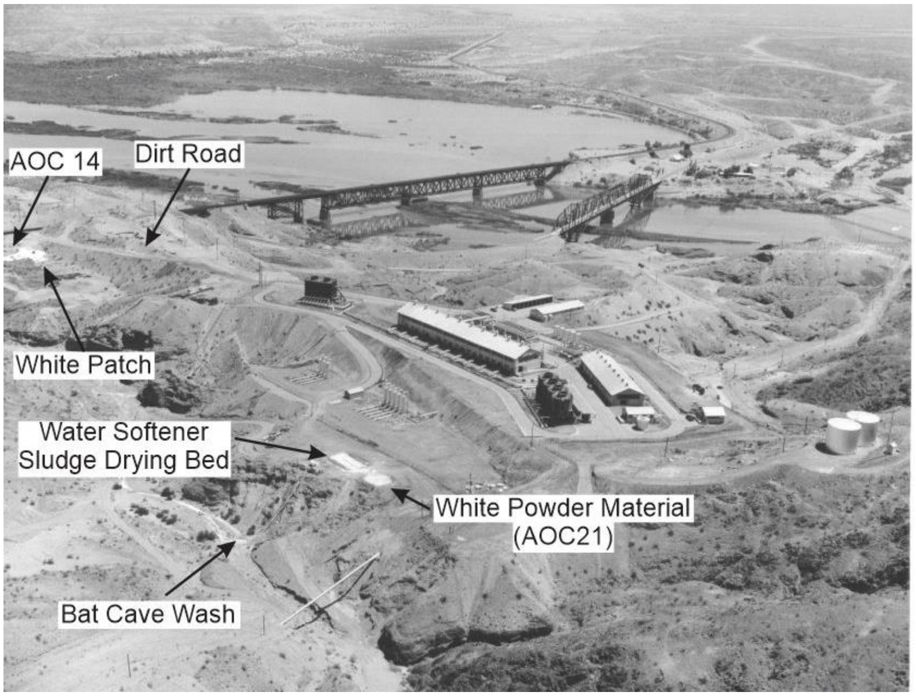
- Chunks of asphalt
- Concrete
- Railroad ties
- Piping
- Burnt material
- ACM



Photograph 4.1.7-1: September 30, 1947, Aerial Photograph, AOC 14
Note: From the USGS. First appearance of AOC 14 Railroad Debris Site.



Photograph 4.1.7-2: May 19, 1955, Aerial Photograph 2, AOC 14.
Note: Facing northwest. A white patch is visible in AOC 14. An apparent round impoundment area with white powder material is located in the lower yard of the TCS, south of the water-softener sludge drying bed.



Photograph 4.1.7-3: May 19, 1955, Aerial Photograph 1, AOC 14.
Note: Facing northeast. A white patch is visible in AOC 14. A dirt access road is visible running from the northern end of the TCS along the eastern side of AOC 14.

4.1.7.2 Unit History

Employee reports indicate that a removal action for debris and white powder material was conducted in the mid-1990s; however, no documentation regarding the removal has been found (CH2M 2006). Contours and grading marks on the surface of the Site (Figure 3-8a) suggest that excavation occurred across the southern two-thirds of the Site. The southern two-thirds of the Site are somewhat lower in elevation than the surrounding areas, and a long, low soil mound or berm is present immediately north of this area. Some white powder material remains in the embankment adjacent to I-40, and it appears that a thin lens of additional material has been uncovered by erosion on the southern side of the soil mound.

In addition, a 1998 investigation of the area indicated that a layer of white powder material is present below the current soil surface to approximately 5 feet bgs (Wong, pers. comm. 1999a). This layer has variable thickness and, in some areas, is underlain and overlain by a mix of the white powder material and gravel.

An ACM removal action was completed at this location in 1999 (Wong, pers. comm. 1999b). In November 1998, during soil sampling at AOC 14, a small amount of friable construction debris and transite was found. The friable material contained more than 1% asbestos. The transite was non-friable; and, after sampling, the transite was left in the trench and was covered with clean fill material. PG&E removed the friable ACM on April 14, 1999, and disposed of the material at an appropriate landfill. Two shallow confirmation samples of the underlying soils were collected, and asbestos was detected at 1 sample location. Additional sampling was implemented to characterize the extent of the asbestos in the soil underlying the loose construction material near this sample. On June 1, 1999, 14 additional samples were taken, and no asbestos was detected in any of the sample locations.

4.1.7.3 Field Observations

Field observations made by DTSC in 2009 identified potential burn material along the I-40 road cut near the southwestern corner of AOC 14. During additional employee interviews conducted by PG&E in late

2009 and early 2010, a former PG&E TCS employee reported periodic burning of primarily office garbage on the western edge of the AOC 14 bench area. The employee reported that AOC 14 was used for dumping and garbage burning until the freeway was built in the 1960s (PG&E 2010). Several soil borings were installed, and soil samples were collected during the Phase 1 investigation in 2008 from the general areas identified as the area used for burning; however, burned material was not delineated or sampled.

An area of former trash disposal and burning is present along the western side of AOC 14 (Figure 4-6a). In 2016 and 2017, trenching was conducted in AOC 14 in a series of six trenches to identify the extent of debris and burned material in the former trash disposal and burning area. Layers containing various types of debris (metallic material, charcoal, glass, wire, hose, ACM, tile, etc.) were observed in the trenches. Trench locations were recorded using GPS and are shown on Figure B1 in Appendix B. Analytical results for trench samples are presented in Tables 3-9a through 3-9k. Detailed descriptions of the trenches and observed debris can be found in Appendix B. Additional debris features to the west and east of AOC 14 are also noted on Figure 4-6a. Materials and debris located to the east and west of AOC 14 are not necessarily attributed to PG&E operations and appear to be primarily inert trash and debris; therefore, samples were not collected of this debris or the underlying soil.

4.1.7.4 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 14 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location. Appendix B, Attachment B2 provides the trench logs.

The soil at AOC 14 comprises a relatively homogeneous unit of silty gravel with sand to well-graded gravel with silt. Gravel content increases with depth from approximately 60% to 80%, and fine sand and silt content decreases with depth from approximately 40% to 20%. Lithology is recorded to a maximum depth of 15 feet bgs at AOC 14. Figures 4-6b through 4-6h are cross sections showing lithology for AOC 14.

Descriptions of staining and debris observed in samples collected at AOC 14, and associated contamination, are as follows:

- As discussed in Section 4.1.7.3, debris layers up to 4 feet thick were observed in trenches and borings throughout the unit.
- At boring location AOC14-2, white powder was observed from 2 feet to 3.25 feet bgs. CrVI exceeded the ISL between 2 feet and 3.25 feet bgs. CrT was detected less than the ISL in the sample collected directly from white powder (3 feet to 3.25 feet bgs).
- At boring location AOC14-13, debris was observed from 0.5 foot to 1.5 feet bgs. The following analytes exceeded the ISLs (sample result is a Category 3 data type) in the collected debris sample:
  - Arsenic
  - CrT
  - Copper
  - Lead
  - Molybdenum
  - Nickel
- At boring AOC14-15, a white debris layer with chunks of asbestos was observed from 5 feet to 6 feet bgs. Thallium exceeded the ISL from 5 feet to 6 feet bgs.
- Debris, burn material, and white powder were observed in the following trenches:
  - AOC14-14
  - AOC14-15
  - AOC14-16
  - AOC14-17

These locations (except AOC 14-17) are included in the NTCRA.

- Burn waste is exposed at the surface near the freeway near sample location AOC14-19. There were ISL exceedances of the following analytes at AOC14-19:
  - Metals
  - 4,4-DDE
  - 4,4-DDT
  - Dioxins and furans

  DTSC is concerned that the burn waste and debris may continue a distance south under the freeway.

4.1.7.5 Analytical Results

Appendix B summarizes general field and sample collection methods. Tables 3-9a through 3-9k provide the analytical results for AOC 14, and Figures 3-8a through 3-8k show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.1.7.6 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Samples were collected from 47 locations at depths ranging from 0 foot to 15 feet bgs. The ISLs for the following metals were exceeded:

- Antimony (ECV)
- Arsenic (BK)
- Cadmium (BK)
- CrVI (BK)
- CrT (BK)
- Cobalt (BK)
- Copper (BK)
- Lead (BK)
- Mercury (ECV)
- Molybdenum (BK)
- Nickel (BK)
- Selenium (BK)
- Thallium (RRSL)
- Vanadium (BK)
- Zinc (BK)

Those metals were exceeded at one or more of the following locations:

- AOC14-1 through AOC14-8
- AOC14-10
- AOC14-12
- AOC14-13
- AOC14-14E
- AOC14-14W
- AOC14-15
- AOC14-16E
- AOC14-16W
- AOC14-17W

- AOC14-18
- AOC14-19
- AOC14-21
- AOC14-SS-1
- AOC14-SS-4
- S2-6
- S2-62
- S4-4
- SB-23
- RR-4 through RR-6
- RR-9
- RR-11

Table 3-9a and Figures 3-8a through 3-8k show the exceedances.

CrVI and lead were most frequently detected exceeding the ISLs:

- CrVI was detected exceeding its ISL (0.83 mg/kg) in 13 samples taken from depths between 0 foot and 8 feet bgs (Table 3-9a). The greatest CrVI concentration of 20 mg/kg was detected at sample location AOC14-16W at 2 feet to 3 feet bgs. Sample location AOC14-16W was collected from trench AOC14-16, advanced along the western edge AOC 14 above AOC 1 – Bat Cave Wash (Figure 3-8b).
- Lead was detected exceeding its ISL (8.39 mg/kg) at 21 locations from depths between 2 feet and 3 feet bgs (Table 3-9a). The greatest lead concentration of 1,600 mg/kg was detected at sample location AOC14-19 at 2 feet to 3 feet bgs. Sample location AOC14-19 was collected in the I-40 road cut where burned material was observed (Figure 3-8e).

The lateral extent of the exceedances has been defined by samples with results less than ISLs, not detected exceeding reporting limits, or by topographical features, except south of AOC14-19. Most exceedances of metals were in samples collected from trenches AOC14-14 and AOC14-16 and appear to be associated with debris. Copper, mercury, and molybdenum were detected at elevated concentrations in these trenches, with some mercury exceedances of the California hazardous waste levels. Exceedances at AOC14-19 may be associated with nearby burn waste exposed at the surface near the freeway. The lateral extent of the following metals is considered undefined south of AOC14-19:

- Antimony
- Arsenic
- Cadmium
- CrT
- Cobalt
- Copper
- Lead
- Molybdenum
- Nickel
- Zinc

However, the presence of large quantities of contamination below the current freeway elevation is not expected because construction of the freeway should have required excavation below historical debris disposal.

The vertical extent of exceedances has been defined by samples with results less than ISLs or not detected exceeding reporting limits. The deepest samples at the following locations had detected metal results slightly exceeding their respective ISLs, with FOEs of 1.1 to 3.3 times the ISL:

- AOC14-7
- AOC4-8

- S2-6
- AOC14-14E
- AOC14-18
- AOC14-19
- AOC14-15

These locations were further screened against RBCs, and concentration trends with depth were considered; the results are as follows:

- Concentration of molybdenum at AOC14-7 in the deepest sample is less than the RBC. This sample was collected from 14 feet to 15 feet bgs and is not available to receptors. Molybdenum at AOC14-7 is not considered a data gap requiring further investigation.
- Concentration of copper in the deepest sample at AOC14-8 is slightly greater than the ISL but well less than the RBC. This sample was collected from 14 feet to 15 feet bgs and is not available to receptors. Copper at AOC14-8 is not considered a data gap requiring further investigation.
- Concentrations of CrVI and CrT at S2-6 decrease with depth, are less than RBCs in the deepest sample, and do not present unacceptable risk to receptors.
- The deepest sample at AOC14-14E (between 9 feet and 10 feet bgs) exceeds the ISL for thallium but is less than the RBC. No other metals were detected exceeding their respective ISLs in any sample collected from AOC14-14E. This low-level exceedance is not considered a data gap based on absence of other contamination at this location and depth.
- Concentration of copper at AOC14-19 decreases with depth, is less than the RBC, and does not present unacceptable risk to receptors.
- Concentration of thallium at AOC14-15 is consistent from 2 feet to 8 feet bgs, is less than the RBC, and does not present an unacceptable risk to receptors.
- Concentration of molybdenum in the deepest sample at AOC 14-18 is less than the RBC, but the concentration increases with depth. As the vertical extent of molybdenum is defined throughout the rest of AOC14, and the concentration in the deepest sample does not present an unacceptable risk to receptors, this minor exceedance of the ISL (2.2 times the ISLs) is not considered a data gap requiring further investigation.

Three additional white powder samples were collected from near the roadway by DTSC in March 2022 (DTSC 2022). Samples were analyzed for metals and CLP inorganics. In all 3 samples, CrVI was ND, and all other metals results were ND or less than BK concentrations. There were ISL exceedances for the following analytes:

- Calcium
- Magnesium
- Sodium

DTSC also collected a sample of the AOC 14 white powder material on January 18, 2008, from the bank of the freeway (DTSC AOC 14 – Roadcut). This sample was collected as a comparison sample to the samples of white powder collected from AOC 10 - East Ravine. The results of this sampling were summarized in DTSC's memo *Field Report: White Powder Occurrences in the East Ravine - Area of Concern (AOC) 10, Pacific Gas and Electric (PG&E) Company Topock Compressor Station, Needles, California PCA 22120 WP 540015-48/36 WR 640233* (DTSC 2008).

The following compounds were detected in the DTSC-AOC14-Roadcut sample:

- Barium
- CrT
- Cobalt

- Vanadium
- Zinc
- Sodium
- Calcium
- Iron
- Manganese
- Potassium

Of these compounds, only calcium was detected exceeding its interim screening level. These data are not included in the summary tables because they were not collected, analyzed, or validated under the PG&E Program Quality Assurance Program Plan. The composition of the white powder at AOC 14 is considered characterized and is not a data gap.

CLP Inorganics: Soil samples were collected from 10 locations at depths ranging from 0 foot to 3 feet bgs, and one white powder sample was collected at 4 feet bgs (Table 3-9b).

The ISLs for the following analytes were exceeded in the white powder sample at S4-4 at 4 feet bgs (Table 3-9b):

- Calcium (BK) 379,000 mg/kg
- Magnesium (BK) 23,000 mg/kg
- Sodium (BK) 6,590 mg/kg

No soil samples had results exceeding ISLs.

PAHs: Samples were collected from 26 locations at depths ranging from 0 foot to 15 feet bgs (Table 3-9c). PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. The ISLs for B(a)P equivalents (RRSL) and HMW PAHs (ECV) were exceeded at one or more of the following locations: AOC14-12 and AOC14-14w, with the exceedances:

- B(a)P equivalents were detected exceeding the ISL (110 µg/kg) in 2 samples taken from depths between 0 foot and 6 feet bgs (Table 3-9c). The greatest B(a)P equivalent concentration of 740 µg/kg was detected at trench sample location AOC14-14W at the surface to 1 foot bgs. Sample location AOC14-14W was collected from a trench that was advanced along the southwestern edge of AOC 14 near observed burned material.
- HMW PAH was detected exceeding its ISL (1,160 µg/kg) in 2 samples taken from depths between 0 foot and 6 feet bgs (Table 3-9c). The greatest HMW PAH concentration of 8,068 µg/kg was detected at trench sample location AOC14-14W at the surface to 1 foot bgs. Sample location AOC14-14W was collected from a trench that was advanced along the southwestern edge of AOC 14 near observed burned material.

The lateral and vertical extents of the exceedances have been defined by samples with results less than ISLs, not detected exceeding reporting limits, or by topographical features.

VOCs and SVOCs: Samples were collected from 26 locations at depths ranging from 0 foot to 15 feet bgs (Table 3-9d). No samples had detected results that exceeded their respective ISLs. The analytical results for AOC 14 do not support evidence of a release of VOCs.

TPH: Samples were collected from 25 locations at depths ranging from 0 foot to 15 feet bgs (Table 3-9e). The ISLs for TPH-d (CHHSL) and TPH-mo (CHHSL) were exceeded at the following locations: AOC14-16W and S8-23, as shown in Table 3-9e and on Figure 3-8j.

TPH-d was detected exceeding the ISL (230 mg/kg) at one 1 location: AOC14-16W from a depth between 2 feet and 3 feet bgs at a concentration of 630 mg/kg.

The lateral extent of the exceedances has been defined by samples with results less than ISLs or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than ISLs or not detected exceeding reporting limits, except at S8-23, where TPH-d and TPH-mo exceeded their respective ISLs at 3 feet bgs. This does not represent a data gap requiring further investigation because it appears to be associated with a lens of black sandy material encountered in this boring. These heavy-end TPH compounds are not readily mobile and are not expected to migrate laterally or vertically.

General Chemistry: Samples were collected from 35 locations at depths ranging from 0 foot to 10 feet bgs (Table 3-9f). ISLs were not established for general chemistry parameters.

Pesticides: Samples were collected from 17 locations at depths ranging from 0 foot to 10 feet bgs. The ISLs for 4,4-DDE (ECV) were exceeded at AOC14-16W and AOC14-19, and the ISLs for 4,4-DDE and 4,4-DDT (ECV) were exceeded at AOC14-2, as shown in Table 3-9g. The maximum detected concentration was measured at 4.4 µg/kg at a depth of 2 feet to 3 feet bgs. Sample location AOC14-19 was collected in the road cut where burned material was observed.

The lateral and vertical extents of the exceedances have been defined by samples with results less than ISLs, not detected exceeding reporting limits, or by topographical features, except at AOC14-19, where the lateral extent of 4,4-DDE is not defined to the south. However, the presence of large quantities of contamination below the current freeway elevation is not expected because construction of the freeway should have required excavation below historical debris disposal.

PCBs: Samples were collected from 16 locations at depths ranging from 0 foot to 10 feet bgs (Table 3-9h). No samples had detected results that exceeded their respective ISLs.

Dioxins and Furans: Samples were collected from 10 locations at depths ranging from 0 foot to 10 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ human (RRSL), TEQ avian (ECV), and TEQ mammal (ECV) were exceeded at the following locations (Table 3-9i and Figures 3-8j and 3-8k):

- AOC14-14E
- AOC14-14W
- AOC14-15
- AOC14-16E
- AOC14-16W
- AOC14-19

Exceedances are described as follows:

- TEQ avian samples were detected exceeding its ISL (16 ng/kg) in 4 samples taken from depths between 0 foot and 7 feet bgs (Table 3-9i). The greatest TEQ avian concentration of 780 ng/kg was detected at sample location AOC14-14W at 5 feet to 5.5 feet bgs. Sample location AOC14-14W was collected from a trench that was advanced along the southwestern edge AOC 14 near the area where burned material was observed (Figure 3-8j).
- TEQ human samples were detected exceeding its ISL (50 ng/kg) in 2 samples taken from depths between 2 feet and 5.5 feet bgs (Table 3-9i). The greatest TEQ human concentration of 480 ng/kg was detected at sample location AOC14-14W at 5 feet to 5.5 feet bgs. Sample location AOC14-14W was collected from a trench that was advanced along the southwestern edge AOC 14 near the area where burned material was observed.
- TEQ mammal samples were detected exceeding its ISL (5.58 ng/kg) in 10 samples taken from depths between 0 foot and 10 feet bgs (Table 3-9i). The greatest TEQ mammal concentration of 480 ng/kg

was detected at sample location AOC14-14W at 5 feet to 5.5 feet bgs. Sample location AOC14-14W was collected from a trench that was advanced along the southwestern edge AOC 14 the area where burned material was observed (Figure 3-8k).

The lateral and vertical extents of TEQ avian and TEQ human exceedances have been defined by samples with results less than ISLs or not detected exceeding reporting limits, except at AOC 14-19, where the lateral extent is not defined to the south. However, the presence of large quantities of contamination below the current freeway elevation is not expected because construction of the freeway should have required excavation below historical debris disposal.

The lateral and vertical extents of the TEQ mammal exceedances have not been defined by samples with results less than ISLs or not detected exceeding reporting limits, as shown on Figures 3-8a through 3-8k. These exceedances of the ISLs do not represent a data gap requiring further investigation because the TEQ mammal ISL (5.58 ng/kg) is the most conservative and lowest screening level for dioxin TEQ. Further investigation to assess the vertical extent of TEQ mammal is not warranted.

Asbestos: Bulk samples of the white powder analyzed by polarized light microscopy indicated that asbestos fibers were present in the following areas (Table 3-9j):

- AOC14-1
- AOC14-2
- AOC14-3
- AOC14-4
- AOC14-5
- AOC14-9
- AOC14-12
- AOC14-13
- AOC14-SS1
- AOC14-4

To confirm the presence of asbestos fibers, the white powder sample was also analyzed by California Air Resource Board Method 435 and transmission electron microscopy. The analysis did indicate that very low levels of asbestos were present in AOC14-2 and AOC14-SS1 (detected concentration of less than 0.1%, where the detection limit was less than 0.1%). Based on these results, a very small percentage of asbestos fibers (less than 0.1%) is present in the white powder and soil samples. This does not meet the criteria for ACM, which is defined in 40 CFR 763.83 as any material or product that contains more than 1% asbestos.

The lateral and vertical extent of exceedances have been defined by the white powder only being located at select locations.

4.1.7.6 AOC 14 Conceptual Site Model

Figures 4-6a through 4-6h are a graphical CSM and cross sections for AOC 14 based on Site history and background reported in the Soil RFI/RI Work Plan (CH2M 2013a) Exhibit 4-11 presents the following information for AOC 14:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part A DQOs TM (CH2M 2013a), and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination at AOC 14 are disposal of debris, including:

- Some ACM
- Water-softening sludge
- Burn waste
- Potentially residuals from burning of TCS garbage

Metals contamination is likely associated with debris disposed of at AOC 14. CLP inorganics and metals contamination is likely associated with white powder material (water-softening sludge) that was transported to the Railroad Debris Site from AOC 21. PAH and dioxins and furans detections are likely associated with burned debris observed at AOC 14. The greatest contaminant concentrations are generally located in the western and southwestern portions of AOC 14 in the area where disposal and trash burning occurred. These areas are included in the NTCRA.

The primary release mechanisms are direct releases of contaminated particulates or leaching of contaminants from the debris, water-softening sludge, or burned material. Contaminants present in these materials could have been deposited on surface soil as particulates or entered surface soil as dissolved constituents through rainfall infiltration. In addition, the water-softening sludge was reportedly sprayed on the ground, and while most the water in the sludge would have evaporated, some of the liquid in the sludge could have infiltrated into underlying soils.

Because some material is buried, constituents could also have affected shallow and subsurface soils in the immediate vicinity of the debris, water-softening sludge, or residual burned material. Contaminants released from debris located in the higher (eastern) portion of AOC 14 could also have been transported to the lower portions of the unit through surface runoff. Therefore, primary source media consist of surface, shallow, and subsurface soils.

Contaminants could have leached from surface soils and shallow soil into underlying deeper soils. Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway.

COPCs in surface soil may also be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 14, this migration may result in COPCs from AOC 14 migrating west down the hillside to Bat Cave Wash or collecting in low-lying areas between the railroad and I-40. Figures 4-6b and 4-6d show the steep slope from the western boundary of AOC 14 to Bat Cave Wash. Figures 4-6e and 4-6h show the topography between the railroad and I-40.

Windblown dust contamination from small particles of debris or contaminated surface soil within AOC 14 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils. Surface runoff from AOC 14 could also have transported COPCs or COPECs in surface soil or small pieces of debris to Bat Cave Wash.

Exhibit 4-11. Conceptual Site Model, AOC 14 – Railroad Debris Site
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

<table>
<tr><th>Primary Source</th><th>Primary Source Media</th><th>Potential Release Mechanism</th><th>Secondary Source Media</th><th>Potential Secondary Release Mechanism</th><th>Potential Human and Ecological Receptors</th></tr>
<tr><td>Disposal of debris
COPCs include:
• Metals</td><td>• Surface soil</td><td>• Percolation or infiltration
• Potential entrainment in stormwater and /surface water runoff</td><td>• Subsurface soil</td><td>• Wind erosion and atmospheric dispersion of surface soil
• Potential volatilization and atmospheric dispersion</td><td rowspan="2">**Human:**
• Recreational user
• Tribal user
• Maintenance worker
• Commercial worker
Ecological:
• Plants
• Invertebrates
• Birds
• Mammals</td></tr>
<tr><td>Burning of trash and burned material
COPCs include:
• PAHs
• Dioxins and furans</td><td>• Surface soil</td><td>• Percolation or infiltration
• Potential entrainment in stormwater and surface water runoff</td><td>• Subsurface soil</td><td>• Wind erosion and atmospheric dispersion of surface soil</td></tr>
</table>

4.1.7.7 Evaluation of Data Against Data Quality Objectives for AOC 14

This section discusses the evaluation of data against DQOs for AOC 14.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density, except for:

- A minor exceedance of thallium in the deepest AOC14-14 trench sample (AOC14-14E at 9 feet to 10 feet bgs), which is not considered a data gap
- The lateral extent of metals, pesticides, and dioxins and furans south of AOC14-19

Areas in AOC 14 with data gaps shall be considered for inclusion in the CMS/FS. AOC14-19 is within an NTCRA TAA. Future NTCRA activities in this area will remove suspect material, and confirmation sampling will be performed to assess the nature and extent of impacts in the vicinity of AOC14-19 and the freeway shoulder. Data will be reevaluated after the NTCRA is complete.

Tables 3-9a through 3-9j and Figures 3-8a through 3-8k provide analytical results. Table 3-9K provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 152 samples were collected from 47 locations ranging from 0 foot to 15 feet bgs for AOC 14. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IMs.

During implementation of the Soil RFI/RI Work Plan, soil characteristics samples were collected at the following location in AOC 14: AOC14-15. Table 3-37 presents the results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IMs.

Additional Considerations: It is recommended that removal and disposal of surficial debris material be carried forward to the CSM/FS. The western portion of AOC 14 is included in the NTCRA.

4.1.8 AOC 27 – MW-24 Bench

This section provides details about AOC 27 – MW-24 Bench.

4.1.8.1 Setting

AOC 27, the MW-24 Bench (named because monitoring well MW-24 is located in this area), is located north of the lower yard of the TCS, as shown on Figure 2-1. AOC 27 is currently bounded by I-40 to the north, Bat Cave Wash (AOC 1) to the west, and steep topography to the south and east. AOC 27 is approximately 40 feet above the bottom of Bat Cave Wash. An unpaved access road runs from the MW-24 Bench into Bat Cave Wash. Before construction of I-40 in the 1960s, AOC 27 was contiguous with AOC 14, the Railroad Debris Site. Miscellaneous construction debris is present in AOC 27. AOC 27 is located on property owned by PG&E and HNWR.

4.1.8.2 Unit History

During employee interviews conducted by PG&E in late 2009 and early 2010, a former PG&E TCS employee indicated AOC 27 was also used as a waste disposal area (CH2M 2014a). In January 2008, during trenching activities in AOC 27 associated with installation of a control panel for the upland in situ pilot test, debris consisting mostly of treated wood, concrete, and scrap steel and tin (including a possible fragment of a storage tank) were encountered at a depth of approximately 3 feet bgs (Figure 4-7). DTSC and DOI were notified of this discovery in an email dated January 12, 2008. Three samples of the debris and two soil samples were subsequently collected.

During a 2011 Site walk with DTSC and DOI, discolored soil and potential burn waste was noted in the embankment of the unpaved access road leading from AOC 27 to Bat Cave Wash. DTSC directed PG&E to collect samples of the waste material in a March 24, 2011 email. The email also directed PG&E to define the lateral and vertical extents of waste and any associated contamination observed in the in situ pilot study trench.

4.1.8.3 Field Observations

An asbestos survey, geophysical survey, and trenching were conducted at AOC 27. During the asbestos survey, debris samples were collected from 11 locations and submitted for laboratory analysis of asbestos. Types of debris sampled included the following:

- Roofing debris
- Suspected asbestos tile
- Black felt debris
- Cement tile
- Black mastic covered yellow vinyl
- Gray felt roofing debris
- Silver mastic at large round metal gasket
- Curved cement tiles
- Fire hose debris
- Black hot tar debris
- An electrical box

One sample was collected from each debris type that was suspected to contain asbestos. Appendix B, Attachment B9 provide the asbestos reports, and results were as follows:

- Asbestos was present in 7 of the 11 debris types. Results indicated varying concentrations of chrysotile were present in the samples (2 to 40%).

- None of the asbestos-containing samples were friable; therefore, the material did not present a hazard to staff performing nonintrusive surveys (utility or geophysical and XRF).

Following the asbestos survey, a geophysical survey was conducted in December 2015 to identify buried debris using the following methods:

- Terrain conductivity
- Total field magnetics
- Metal detection
- Ground-penetrating radar (GPR)

Appendix B, Attachment B6 provides the results of the geophysical survey, and descriptions of the findings.

After completion of the geophysical survey, trenching was conducted in AOC 27 at a series of 10 trenches to confirm the subsurface anomalies identified during the geophysical survey. Figures 3-9a through 3-9m and Figure B1 in Appendix B show the trench locations recorded. Layers containing various types of debris were observed in most trenches and included:

- Metallic material
- Wood fragments
- Piping
- Concrete

Tables 3-10a through 3-10j provide the analytical results for trench samples. Appendix B provides detailed descriptions of the trenches and observed debris and photographs.

4.1.8.4 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 27 is provided in this section, and Appendix B, Attachment B1 provides boring logs with more detailed lithologic descriptions by location.

The soil at AOC 27 generally comprises well-graded gravel with sand, with approximately 60% gravel, 30% cobbles, and 10% fine to coarse sand. Up to 30% silt was variably noted in soils throughout AOC 27. Lithology was recorded to a maximum depth of 10 feet bgs at AOC 27. Appendix B, Attachment B2 provides the trench logs.

As discussed in Section 4.1.8.3, debris layers up to approximately 10 feet thick were observed in a series of 10 trenches at AOC 27. Debris types at AOC 27 include:

- Roofing debris
- Suspected asbestos tile
- Black felt debris
- Cement tile
- Black mastic covered yellow vinyl
- Gray felt roofing debris
- Silver mastic at large round metal gasket
- Curved cement tiles
- Fire hose debris
- Black hot tar debris
- An electrical box

Exceedances were as follows:

- Trench AOC27-1: An observed debris layer approximately 1.5 feet thick, from approximately 2.5 feet to 5 feet bgs, included wood fragments and rusty metallic material. Attachment B3 provides a photograph of the debris. There were no exceedances of ISLs in the sample collected from the debris layer at AOC27-1 (2-3 feet bgs)
- Trench AOC27-2: An observed debris layer approximately 6 feet thick, from the soil surface to approximately 6 feet bgs, included:
  - Wood fragments
  - Timbers
  - A 3-foot-by-3-foot concrete block
  - A 2-foot-by-2-foot-by-6-foot red concrete block with conduit
  - Red clay pipe (as trash)
  - Metal

  Attachment B3 provides a photograph of the debris. There were not exceedances of ISLs in samples collected from the AOC27-2 trench.
- Trenches AOC27-4 and AOC27-5: An observed debris approximately 3 feet to 5 feet thick, present at varying depths from the soil surface to approximately 6 feet bgs included:
  - Wood fragments
  - Timbers
  - A large concrete block
  - One round piece of metal with tarry or mastic material on one side of the disc-like object (believed to be a crushed tank bottom)

  Attachment B3 provides a photograph of the debris. One sample collected from the debris layer (AOC27-5 2 feet to 3 feet bgs) had ISL exceedances of the following analytes:
  - Cadmium
  - Lead
  - Zinc
- Trenches AOC27-6, AOC27-7, and AOC27-8: An observed debris layer approximately 3 feet thick, from approximately 1 foot to 4 feet bgs, included:
  - Pipe
  - Metallic fragments
  - Glass
  - Wire
  - Tile
  - Construction debris
  - Insulation
  - Pipe wrap
  - Cable
  - Wood

  Attachment B3 provides a photograph of the debris. Samples collected from the debris layer at AOC27-6, AOC27-7, and AOC27-8 had ISL exceedances for the following analytes:
  - Multiple metals
  - PAHs
  - Dioxins and furans
- Trench AOC27-18: An observed debris layer approximately 1.5 foot to 5.5 feet thick, present at varying depths from just below the soil surface to approximately 6 feet bgs, included:
  - Red concrete block

- Tire
- Rebar
- Rusty metallic pieces
- Asphalt chunks
- Charcoal
- Old road base
- One larger concrete block (the observed face of the block was approximately 5 feet by 5 feet)

Attachment B3 provides a photograph of the debris. Samples collected from the debris layers at AOC27-18 and AOC27-18E had ISL exceedances of the following analytes:

- Cadmium
- Lead
- Zinc

- Trench AOC27-24: Observed debris included:
  - Rusty metal
  - A large block of concrete (approximately 5 feet by 5 feet on exposed face) in the shape of a "U"
  - Wood next to the concrete (possible forms)

  Attachment B3 provides a photograph of the debris. There were no exceedances of ISLs in samples collected from the AOC27-24 trench.

- Trench AOC27-24SW: Observed debris included:
  - Rusty metal
  - A large block of concrete (approximately 5 feet tall)
  - Wood next to the concrete (possible forms)

  Attachment B3 provides a photograph of the debris. There were no exceedances of ISLs in samples collected from the AOC27-24SW trench.

- Trench AOC27-50: Observed debris included rusty metal, tiles, red clay pipe, and glass debris

  Attachment B3 provides a photograph of the debris. Samples collected from the debris layers at AOC27-50 had ISL exceedances of the following analytes:

  - Multiple metals
  - PAHs
  - Dioxins and furans

4.1.8.5 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-10a through 3-10j provide the analytical results for AOC 27, and Figures 3-9a through 3-9m show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.1.8.6 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Samples were collected from 20 locations at depths ranging from 0 foot to 10 feet bgs. The ISLs were exceeded for the following analytes:

- Antimony (ECV)
- Arsenic (BK)
- Cadmium (BK)

- CrVI (BK)
- CrT (BK)
- Cobalt (ECV)
- Copper (BK)
- Lead (BK)
- Mercury (ECV)
- Molybdenum (ECV)
- Nickel (BK)
- Selenium (BK)
- Vanadium (BK)
- Zinc (BK)

At one or more of the following locations (Table 3-10a and Figures 3-9a through 3-9h):

- 24soil-01
- 24soil-2
- AOC27-1
- AOC27-5 through AOC27-8
- AOC27-18
- AOC27-20
- AOC27-27
- AOC27-36
- AOC27-50
- AOC27-51
- PA-13

The analytes most frequently detected greater than the ISLs were as follows:

- Copper was detected exceeding its ISL (16.8 mg/kg) in 10 samples taken from depths between 0 foot and 10 feet bgs (Table 3-10a). The greatest copper concentration of 1,000 mg/kg was detected at sample location AOC27-7 at 2 feet to 3 feet bgs. Sample location AOC27-7 was collected from trench AOC27-7, advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9d).
- Lead was detected exceeding its ISL (8.39 mg/kg) in 16 samples taken from depths between 0 foot and 6 feet bgs (Table 3-10a). The greatest lead concentration of 630 mg/kg was detected at sample location AOC27-6 at the surface to 1 foot bgs. Sample location AOC27-6 was collected from trench AOC27-6, advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9e).
- Mercury was detected exceeding its ISL (0.0125 mg/kg) in 13 samples taken from depths between 0 foot and 10 feet bgs (Table 3-10a). The greatest mercury concentration of 0.95 mg/kg was detected at sample location AOC27-7 at 2 feet to 3 feet bgs. Sample location AOC27-7 was collected from trench AOC27-7, advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9f).
- Zinc was detected exceeding its ISL (58 mg/kg) in 13 samples taken from depths between 0 foot and 6 feet bgs (Table 3-10a). The greatest zinc concentration of (1,300 mg/kg) was detected at sample location AOC27-7 at 2 feet to 3 feet bgs. Sample location AOC27-7 was collected from trench AOC27-7, advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9h).

The lateral extent of the exceedances has been defined by samples with results less than ISLs, not detected exceeding reporting limits, or by topographical features. The vertical extent of the exceedances has generally been defined by samples with results less than ISLS, not detected exceeding reporting limits, or by nearby deeper samples less than ISLs. The deepest samples at the following locations had detected metals results exceeding their respective ISLs:

- AOC27-6
- AOC27-18
- AOC27-18E
- AOC27-27
- AOC27-50
- AOC27-51

These locations were further screened against RBCs, and concentration trends with depth were considered, with the following results:

- Mercury concentrations in the deepest samples at AOC27-6, AOC27-27, and AOC27-50 exceed the ISL but are less than the RBC of 1 mg/kg. Additionally, mercury concentrations at these locations decrease with depth. Mercury at these locations does not present an unacceptable risk to receptors.
- Only one depth was sampled at AOC27-18E; therefore, concentrations trends with depth cannot be assessed. Metals at these locations that exceed ISLs (cadmium, lead, zinc) do not exceed RBCs and do not present an unacceptable risk to receptors.
- Concentrations at AOC27-6 decrease with depth, and the concentrations in the deepest sample are less than RBCs, except for lead. However, vertical extent of lead is defined to the ISL in nearby samples of the same depth or deeper. AOC27-6 and neighboring samples are located within a burn waste area, and the vertical extent may vary, depending on the configuration of the waste impacts. The area around AOC27-6 is recommended to be considered for inclusion in the CMS/FS and is included in the NTCRA.
- CrVI concentration at AOC27-18 does not exceed RBC in the deepest sample (9 feet to 10 feet bgs). This exceedance at depth does not present an unacceptable risk to receptors.

CLP Inorganics: A single sample was analyzed for CLP inorganics, AOC27-51, and did not exceed any of the ISLs (Table 3-10b).

PAHs: Samples were collected from 20 locations at depths ranging from 0 foot to 10 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. The ISLs for HMW PAHs (ECV) and B(a)P equivalent (RRSL) were exceeded at one or more of the following locations:

- 24soil-01
- 24soil-02
- AOC27-50
- AOC27-51
- AOC27-6
- AOC27-7
- 24debris-03

Exceedances are described as follows:

- B(a)P equivalents were detected exceeding the ISL (110 µg/kg) in 8 samples taken from depths between 0 foot and 3 feet bgs (Table 3-10c). The greatest B(a)P equivalent concentration of 3,300 µg/kg was detected at sample location AOC27-6 at the surface to 1 foot bgs. Sample location AOC27-6 was collected from trench AOC27-6, advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9i).
- HMW PAH was detected exceeding its ISL (1,160 µg/kg) in 6 samples taken from depths between 0 foot and 3 feet bgs (Table 3-10c). The greatest HMW PAH concentration of 31,530 µg/kg was detected at sample location AOC27-6 at the surface to 1 foot bgs. Sample location AOC27-6 was

collected from trench AOC27-6, advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9j).

The lateral extent of the exceedances has been defined by samples with results less than ISLs or not detected exceeding reporting limits, except in the area of the following sample locations:

- AOC27-6
- AOC27-7
- AOC27-50
- AOC27-51

Concentrations of HMW PAH and B(a)P equivalents are less than RBCs at AOC27-50, AOC27-51, and AOC27-7 and do not present unacceptable risks to receptors. Concentrations at AOC27-6 are greater than the RBRG, and the area around AOC27-6 is recommended to be considered for inclusion in the CMS/FS. The vertical extent of the exceedances has been defined by samples with results not detected exceeding reporting limits, less than ISLs, or by nearby deeper samples with concentrations less than ISLs.

VOCs and SVOCs: Samples were collected from 17 locations at depths ranging from 0 foot to 10 feet bgs. Only bromomethane and chloromethane were detected exceeding laboratory reporting limits, and no samples had detected results that exceeded their respective ISLs (Table 3-10d).

TPH: Samples were collected from 20 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-10e).

General Chemistry: Samples were collected from 21 locations (Table 3-10f). ISLs were not established for general chemistry parameters.

Pesticides: Samples were collected from 17 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-10g).

PCBs: Samples were collected from 18 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-10h).

Dioxins and Furans: Dioxins and furans are evaluated by calculating TEQ values for avian, human, and mammal receptors. The ISLs for TEQ human (RRSL), TEQ avian (ECV), and TEQ mammal (ECV) were exceeded at one or more of the following locations:

- AOC27-18
- AOC27-18E
- AOC27-20
- AOC27-4
- AOC27-5
- AOC27-50
- AOC27-51
- AOC27-6
- AOC27-7
- AOC27-8

Exceedances are described as follows:

- TEQ avian samples were detected exceeding its ISL (16 ng/kg) in 6 samples taken from depths between 0 foot and 6 feet bgs (Table 3-10i). The greatest TEQ avian concentration of 260 ng/kg was detected at sample location AOC27-7 at 2 feet to 3 feet bgs. Sample location AOC27-7 was collected from a trench that was advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9k).

- TEQ human samples were detected exceeding its ISL (50 ng/kg) in 4 samples taken from depths between 0 foot and 6 feet bgs (Table 3-10i). The greatest TEQ human concentration of 230 ng/kg was detected at sample location AOC27-7 at 2 feet to 3 feet bgs. Sample location AOC27-7 was collected from a trench that was advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9l).
- TEQ mammal samples were detected exceeding its ISL (5.58 ng/kg) in 18 samples taken from depths between 0 foot and 6 feet bgs (Table 3-10i). The greatest TEQ mammal concentration of 230 ng/kg) was detected at sample location AOC27-7 at 2 feet to 3 feet bgs. Sample location AOC27-7 was collected from a trench that was advanced along the access road to Bat Cave Wash near observed burned material (Figure 3-9m).

The lateral extents of the TEQ avian and human exceedances have been defined by samples with results less than ISLs, results not detected exceeding reporting limits, or by topographical features, except in the area of sample locations AOC27-6 and AOC27-7. TEQ human concentrations are also greater than the RBC (100 ng/kg) at AOC27-6 and AOC27-7. AOC 27 in the vicinity of AOC27-6 and AOC27-7 is recommended to be considered for inclusion in the CMS/FS. These locations are included in the NTCRA. The vertical extent of the TEQ avian and human exceedances have been defined by samples with results less than ISLs or not detected exceeding reporting limits.

The lateral and vertical extents of the TEQ mammal exceedances have not been defined by samples with results less than ISLs or not detected exceeding reporting limits, as shown on Figure 3-9m. These exceedances of the ISLs do not represent a data gap requiring further investigation because the TEQ mammal ISL (5.58 ng/kg) is the most conservative and lowest screening level for dioxin TEQ. Further investigation to assess the vertical extent of TEQ mammal is not warranted.

4.1.8.6 AOC 27 Conceptual Site Model

Figure 4-7 is a graphical CSM developed for AOC 27 based on the Site BK. Exhibit 4-12 presents the following information for AOC 27:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

The primary source of contamination at AOC 27 is the disposal of debris (including ACM) and apparent historical burning of waste and debris. Most exceedances of metals were in samples collected from the following trenches and appear to be associated with debris:

- AOC27-6
- AOC27-7
- AOC27-8
- AOC27-20
- AOC27-50

The following analytes were detected at elevated concentrations in these trenches:

- Copper
- Lead
- Mercury
- Molybdenum

PAH and dioxins and furans detections are likely associated with burned debris observed at AOC 27. The greatest concentrations for all contaminants were found along the access road leading from AOC 27 to Bat Cave Wash in the following trenches:

- AOC27-6
- AOC27-7
- AOC27-8
- AOC27-20
- AOC27-50 in the area where trashed was disposed and burned

The primary release mechanisms are direct releases of contaminated particulates or leaching of contaminants from the debris or burned material. Contaminants present in these materials could have been deposited on surface soil as particulates or could have entered surface soil as dissolved constituents through infiltration of rainfall. Because some material is buried, constituents could also have affected shallow and subsurface soils in the immediate vicinity of the debris. Contaminants released from debris and burn material located in AOC 27 could also have been transported to the lower portions of the unit and potentially to AOC 1 through surface runoff. Therefore, primary source media consist of surface, shallow, and subsurface soils. Contaminants could have leached from surface soils and shallow soil into underlying deeper soils. Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway, but has been ruled out by vadose zone modeling.

COPCs in surface soil may also be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 27, this migration may result in COPCs from AOC 27 migrating downhill into Bat Cave Wash. For example, COPCs could migrate from along the access road, where the greatest concentrations for all constituents were detected, into Bat Cave Wash.

Windblown dust contamination from small particles of debris or contaminated surface soil within AOC 27 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils. There is a potential for windblown transportation of contaminants to nearby areas.

Exhibit 4-12. Conceptual Site Model, AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Disposal of debris **COPCs include:** • Metals	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals
Burning of trash and burned material **COPCs include:** • PAHs • Dioxins and Furans	• Surface soil	• Percolation or infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil	

4.1.8.7 Evaluation of Data Against Data Quality Objectives for AOC 27

This section discusses the evaluation of data against DQOs for AOC 27.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically, except for the following:

- Lateral extent of HMW PAH and B(a)P equivalents in the vicinity of AOC27-6
- Lateral extent of TEQ avian and human in the vicinity of AOC27-6 and AOC27-7
- Vertical extent of lead in the vicinity of AOC26-7

These data gap locations are included in the AOC 27 NTCRA TAA. AOC 27 data will be reevaluated after the NTCRA is complete.

Tables 3-10a through 3-10i and Figures 3-9a through 3-9m provide the analytical results. Table 3-10J provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Field observations during trenching encountered buried debris across much of AOC-27; however, analytical data indicate the buried debris does not contribute to excessive contamination.

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data, 62 samples were collected from 19 locations ranging from 0 foot to 10 feet bgs for AOC 27. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the Soil RFI/RI Work Plan, data were insufficient to complete the Decision 2 evaluation. Samples collected during implementation of the Soil RFI/RI Work Plan fill this data gap.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are insufficient to support CMS/FS and IMs. The following data gap was identified in the Soil RFI/RI Work Plan: Soil physical parameters to support the CMS/FS.

No samples from AOC 27 were analyzed for soil characteristics during implementation of the RFI/RI Work Plan. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

Debris samples were collected at 11 locations within AOC 27 and analyzed for asbestos. Asbestos was present in seven of the samples. None of the asbestos-containing samples were friable. In addition, a geophysical survey was conducted using the following tools:

- Terrain conductivity
- Total field magnetics
- Metal detection
- GPR

Extensive underground utilities were identified, along with several groupings of subsurface anomalies. Trenching and debris identification was also performed. Appendix B provides the survey and trenching results. The debris characterization data are sufficient to support the CMS/FS.

Additional Considerations: It is recommended that removal and disposal of surficial debris material be carried forward to CSM/FS.

4.1.9 AOC 28 – Pipeline Drip Legs

This section provides details about AOC 28 – Pipeline Drip Legs.

4.1.9.1 Setting

AOC 28 consists of four drip legs (AOC 28a through AOC 28d) associated with the 300A and 300B main gas pipelines (two on each of the pipelines), as shown on Figure 2-1 and Figures 4-8a through 4-8e. AOCs 28a, 28b, and 28c drip legs are on the 300A and 300B pipelines located east of the TCS. AOC 28d is a drip leg for the 300B pipeline where it crosses Bat Cave Wash. AOC 28 drip legs are located on PG&E and HNWR property.

A drip leg is typically a separate section of pipe connected to and located below the main gas pipeline. The drip leg is designed to collect pipeline liquids by gravity. Each drip leg is connected to a valve used to drain the pipeline liquids to a fixed or portable tank. The drip legs on the eastern side of the TCS consist of the following drips:

- A dog-leg drip on the 300B pipeline
- An offset drip on the 300A pipeline
- A bottom drip associated with a raised section of pipe on the 300A pipeline

The 300B dog-leg drip was formerly connected to the 300B Pipeline Liquids Tank, which was investigated separately as UA 2. The drip leg on the 300B pipeline in Bat Cave Wash, which was removed in 2021, was also a bottom tap. Figure 4-8b through 4-8e are schematic drawings of the different types of drip legs. Drip legs are also referred to by their location on the pipeline, as measured in miles from the start of the PG&E-owned pipeline, which is at the state line; therefore:

- AOC 28a is MP 0.13A
- AOC 28b is MP 0.21B
- AOC 28c is MP 0.64A
- AOC 28d is MP 0.55B

4.1.9.2 Unit History

Since the early 1980s, PG&E has been conducting annual PCB testing on the collected pipeline liquids from the incoming 300A and 300B transmission pipelines. No PCBs have been detected coming into the TCS through those pipelines. As defined in the Volume 1 Topock RFI/RI (CH2M 2007a), a portion of the Transwestern Gas Pipeline that lies offsite to the east of the TCS was contaminated with PCBs in the 1990s. PCBs were introduced to Line 300 in the 1990s from compressor lubricating oil used by Transwestern. The removal of PCBs from Line 300 was based on the principal that PCBs were only found in pipeline liquids; therefore, the PCB removal effort focused on removing liquids in the pipeline.

Liquid removal devices were installed by Transwestern upstream of the TCS, at the Transwestern facility adjacent to TCS, and at each customer tap along Line 300 from the TCS to the Hinkley Compressor Station. New filter separators were also installed at the TCS and Hinkley Compressor Station. The improved liquid removal equipment installed upstream of Line 300 prevented new pipeline liquids from being introduced to the TCS. As the liquid that existed in the pipelines at the TCS was pushed downstream, it was removed by the newly installed downstream filter separators. Subsequently, PG&E implemented a monthly PCB monitoring program along the entire downstream Line 300 gas pipeline system. Since the initiation of this testing protocol, only low levels of PCBs have been detected in the downstream pipelines.

All drip legs were initially drained to permanent tanks every month. A historical procedure for draining pipeline drips is available (PG&E 1989a). With the exception of UA-2 (AOC 28c), the specific location, size, and historical releases from the permanent drip leg tanks are not known.

The permanent tanks were removed in the 1990s, and pipeline liquids have been drained into portable tanks since then. Over time as upstream gas pipelines have become better at removing pipeline liquids before the gas reaches the TCS, pipeline liquids have been removed less frequently.

As of 2022, pipeline liquids from the AOC 28 drip legs are removed every other month. It is possible that some spillage could occur or may have historically occurred during the transfer process (for example, if the hose from the valve is not connected properly to the portable tank). All potential releases at the drip legs would be surface releases, and the releases would be confined to a very small area in the immediate vicinity of the drip legs. Starting in 2011, liquids collected from the pipeline drips have been disposed of offsite as pipeline liquids. Before this date, liquids were co-mingled with used oil and managed using a general profile of the waste characteristics after profiling was adopted. The most recent analytical results found for pipeline liquids are from 2014. PCBs were not detected in pipeline liquids collected in October 2014.

In the 1990s, the section of Line 300B that included the AOC-28d drip was replaced. To replace the pipeline, all of the soil around the drip would have been excavated, removing historically contaminated soil that may have existed around the drip. In the 1990s, and possibly earlier, cleanups were performed at Line 300 drip locations where contaminated soil was visible to remove oil-contaminated soil. A PG&E employee recalled cleanup in the 1990s at the AOC28a and AOC28b drips. This involved removing the automatic drip collection ASTs and oil-contaminated soil. Records for these cleanup activities were not located. The AOC 28d drip leg was removed in 2021.

In 2011, to assess possible contamination near the drip legs, opportunistic soil samples were collected at two locations (AOC28-OS1 and AOC28-OS2) in the vicinity of AOC 28a and AOC 28c. The Soil RFI/RI Work Plan (CH2M 2013a) proposed four additional soil sampling locations to assess the nature and extent of possible contamination and satisfy the DQOs. The following locations were sampled in 2015 and sample locations were placed as close as possible to the source area to target potential contamination:

- AOC28a-01
- AOC28b-01
- AOC28c-01
- AOC28d-01

Figure 3-1 shows the sampling locations.

4.1.9.3 Lithology Descriptions

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. General lithologic descriptions for AOC28a through AOC28d are provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

At AOC 28a, one boring was advanced to 3 feet bgs. The soil at AOC 28a comprised silty sand with gravel. The soil was medium brown, loose, and moist, with gravel ranging from 0.25 inch to 1 inch in diameter. Bedrock was not encountered at AOC 28a.

At AOC 28b, one boring was advanced to 2.5 feet bgs. The soil at AOC 28b comprised well-graded gravel with silt and sand. The soil was medium brown, dense, and dry, with gravel ranging from 0.25 inch to 3 inches in diameter. At 2.5 feet bgs, the soil comprised entirely bedrock and cobbles that were 3 inches or greater in diameter.

At AOC 28c, one boring was advanced to 3 feet bgs. The soil at AOC 28c comprised silty sand with gravel. The soil was light brown, loose, and dry, with gravel ranging from 0.25 inch to 3 inches in diameter. Trace cobbles from 3 inches to 6 inches in diameter were encountered from 2.5 feet to 3 feet bgs. Bedrock was not encountered at AOC 28c.

At AOC 28d, one boring was advanced to 5 feet bgs. The soil at AOC 28d comprised silty sand with gravel. The soil was light brown, loose, and moist, with gravel ranging from 0.25 inch to 2 inches in diameter. Cobbles ranging from 3 inches to 6 inches in diameter were encountered at 5 feet bgs. Bedrock was not encountered at AOC 28d.

Figures 4-8b through 4-8e are cross sections showing lithology for AOC 14.

4.1.9.4 Analytical Results

Tables 3-11a through 3-11f and sampling locations Figure 3-1 provide analytical results for AOC 28a through AOC 28d. Figures showing results were not developed for AOC 28 because there were only three minor exceedances of ISLs.

This section provides a discussion about the screening level exceedances. Section 4.1.9.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: The ISL for the following analytes were exceeded at the following locations:

- Molybdenum (ECV) was exceeded at AOC28-OS1.
- Molybdenum (ECV) was exceeded at AOC28-OS2.
- Zinc (BK) was exceeded at AOC28-OS2.

Exceedances are summarized as follows:

- Molybdenum was detected exceeding its ISL (2.25 mg/kg) from 9 feet to 9.5 feet bgs at AOC28-OS1 and from 8.5 feet to 9 feet bgs at AOC28-OS2 (Table 3-11a). The greatest molybdenum concentration of 5 mg/kg was detected at sample location AOC28-OS2. Sample location AOC28-OS2 was collected near drip leg AOC28c, located near the access road and Route 66 sign (Figure 3-1).

- Zinc was detected slightly greater than its ISL (58 mg/kg) at a concentration of 70 mg/kg at sample location AOC28-OS2 at 8.5 feet to 9 feet bgs (Table 3-11a). Sample location AOC28-OS2 was collected near drip leg AOC28c (Figure 3-1).

The lateral and vertical extent of the exceedances has been defined. The detected metals results are only slightly greater than their respective ISLs in the deepest samples collected at these locations, with FOEs ranging from 1.2 to 3.6 times the BK values for metals. The molybdenum and zinc concentrations are less than the RBCs. Although the extent of metals exceedances is not defined to the ISLs, the exceedances do not present an unacceptable risk to receptors. Therefore, the vertical extent of metals is not considered a data gap that requires filling.

Two additional discrete samples were collected in 2021 near the AOC 28d drip leg (AOC28-OPP-001 and AOC28-OPP-002). There were no BK or CSL exceedances (Appendix F).

CLP Inorganics: CLP inorganics were not a COPC for this unit; therefore, samples were not analyzed for CLP inorganics. Two discrete samples were collected in 2021 near the AOC 28d drip leg (AOC28-OPP-001 and AOC28-OPP-002). There were no BK exceedances (Appendix F).

PAHs: PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors. Samples were collected from 6 locations. No samples had detected results that exceeded their respective ISLs (Table 3-11b).

Two additional discrete samples were collected in 2021 near the AOC 28d drip leg (AOC28-OPP-001 and AOC28-OPP-002). There were no exceedances of BK or CSLs (Appendix F).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

TPH: Samples were collected from 6 locations. TPHs were detected at all sample locations, but no samples had detected results that exceeded their respective ISLs (Table 3-11c). At sample locations AOC28a-01 and AOC28-OS1, both collected from AOC 28a, TPH results show a pattern of increasing concentrations with sample depth. However, the maximum detected concentration of TPH-d was 160 mg/kg, and the maximum detected concentration of TPH-mo was 700 mg/kg, both less than the ISLs of 230 mg/kg for TPH-d and 11,000 mg/kg for TPH-mo. The maximum detected concentration for TPH-d is also 1 order of magnitude less than the RBC of 5,700 mg/kg, and the maximum detect concentration for TPH-mo is 3 orders of magnitude less than the RBC of 230,000 mg/kg (Table 3-1d). Therefore, TPH in soil does not present an unacceptable risk to receptors, and vertical extent is not considered a data gap that requires filling.

General Chemistry: The only general chemistry parameter evaluated was pH, which does not have an ISL (Table 3-11d). Two additional discrete samples were collected near the AOC 28d drip leg (AOC28-OPP-001 and AOC28-OPP-002, Appendix F).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 6 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-11e). Two additional discrete samples were collected near the AOC 28d drip leg (AOC28-OPP-001 and AOC28-OPP-002). There were no PCB detections (Appendix F).

Dioxins and Furans: Dioxins and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans. Two additional discrete samples were collected near the AOC 28d drip leg (AOC28-OPP-001 and AOC28-OPP-002). There were no CSL exceedances (Appendix F).

4.1.9.5 AOC 28 Conceptual Site Model

Figure 4-8a is a graphical CSM developed for AOC 28 based on Site history and background reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-13 presents the following information for AOC 28:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

The primary source of TPH contamination in AOC 28 is potential historical or current spills while transferring the contents of the drip legs to the portable tanks. Although TPHs and PAHs were detected in soil, no results exceeded their respective ISLs. PAHs are ubiquitous in the environment and have been detected at low concentrations in most RFI/RI soil investigation units.

Any constituents released would have been released in liquid form to surface soil. Therefore, surface soil is the primary source medium; however, some constituents could have infiltrated from surface soil into underlying shallow soil, as supported by greater TPH concentrations at depth. Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway, but was ruled out during vadose zone modeling, presented in Appendix C. COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. During extreme wet weather events, it is possible that some constituents may have been transported from AOC 28a, 28b, or 28c to the adjacent pipeline road in surface runoff.

Windblown dust contamination from small particles of contaminated surface soil within AOC 28 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils. There is a potential for windblown transportation of contaminants from AOC 28 to nearby areas.

4.1.9.6 Evaluation of Data Against Data Quality Objectives for AOC 28

This section discusses the evaluation of data against DQOs for AOC 28.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-11a through 3-11e provide analytical results. No analytes were detected at concentrations exceeding the ISLs four or more times; therefore, no results figures are presented. Sample locations can be seen on Figure 3-1 for reference. Table 3-11f provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 17 samples were collected from 6 locations ranging from 0 foot to 9.5 feet bgs for AOC 28. The samples were analyzed for one or more of the following analyte categories:

- Metals
- PAHs
- TPH
- General chemistry
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the Soil RFI/RI Work Plan, data were insufficient to complete the Decision 2 evaluation. Samples collected during implementation of the Soil RFI/RI Work Plan fill this data gap.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IMs.

During implementation of the RFI/RI Work Plan, a soil characteristics sample was collected in AOC 28 at AOC28b-01. Table 3-37 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IMs.

Additional Consideration: There is uncertainty whether the correct location was investigated for some historical tank units.

Exhibit 4-13. Conceptual Site Model – AOC 28
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental leaks during transfer process **COPCs include:** • TPH • PAHs	• Surface soil	• Percolation or infiltration	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.1.10 AOC 29 – Interim Measure No. 3 Treatment Plant

This section provides details about AOC 29 – the IM-3 Treatment Plant.

4.1.10.1 Setting

AOC 29, IM-3 Treatment Plant, is located north of I-40, as shown on Figure 2-1 and Figures 4-9a and 4-9b. IM-3 provides hydraulic control of the plume boundaries near the Colorado River to maintain a landward gradient. AOC 29 consists of the entire IM-3 groundwater treatment plant, including (Figures 4-9a and 4-9b):

- Equipment
- Pipelines
- Valves
- Instrumentation
- Utilities
- All infrastructure
- Sunshade
- Mobile warehouse units
- Trailer
- Treatment plant foundation and secondary containment areas
- Underground pipelines and utilities within the footprint of the treatment plant fence line
- The security fence and gate

The IM-3 Treatment Plant was established and is operated under modern waste management laws and will be closed pursuant to a decommissioning plan. Investigation of this unit is scheduled to be conducted as part of the decommissioning and removal activities as proposed in the *Interim Measure No. 3 Decommissioning, Removal, and Restoration Work Plan* (CH2M 2014b); therefore, this AOC will not be fully investigated until the IM-3 Treatment Plant is decommissioned. AOC 29 is located on property owned by the FMIT.

4.1.10.2 Unit History

PG&E began implementing an IM to hydraulically control groundwater contamination in March 2004. The IM was intended to function until the final TCS groundwater remedy is put into operation. The initial stage of the IM involved pumping, transporting, and disposing of groundwater from the MW-20 Bench (AOC 30, IM-2). Batch treatment of groundwater was added to the MW-20 Bench in July 2004. The IM-3 Treatment Plant was constructed to replace Interim Measure No. 2 (IM-2) because space and treatment capacity limitations precluded management of higher groundwater flows at the MW-20 Bench (CH2M 2014a).

The IM-3 Treatment Plant began treating groundwater in July 2005, and was in continuous operation until December 21, 2021, when IM-3 was replaced by Phase 1 of the final groundwater remedy. IM-3 was taken out of service on March 21, 2022, when the system was left in a safe, secure, and preserved state. (Jacobs 2023).

In early September 2005, IM-2 was turned off; and in 2009, it was decommissioned, and the MW-20 Bench site was reconfigured to support continued operation of the IM-3 treatment system (CH2M 2014a). Section 4.1.11 provides detailed information regarding the MW-20 Bench (AOC 30).

DOI and DTSC have selected the final groundwater remedy (DOI 2010a; DTSC 2011f), and AOC 29 will not be a part of the selected final remedy; therefore, the IM-3 Treatment Plant and other parts of IM-3 will be decommissioned and removed after DOI and DTSC determine that the final remedy is operating properly and successfully. Because AOC 29 is an operating facility, it will be investigated and closed following decommissioning of IM-3.

4.1.10.3 Analytical Results

Because of active use of the IM-3 Treatment Plant, characterization sampling has not occurred at AOC 29. Soil data will be collected as part of decommissioning and removal of IM-3.

4.1.10.4 AOC 29 Conceptual Site Model

The primary sources of contamination at AOC 29 are likely to have been incidental spills; all spills within IM-3 were appropriately addressed at the time they occurred. The primary source medium at AOC 29 is soil. Based on unit description, history, previous soil characterization, and discussions with DTSC and DOI, the COPCs for soil within AOC 29 include the following analytes (CH2M 2014a):

- Title 22 metals
- CrVI
- VOCs
- SVOCs
- PAHs
- TPH
- pH
- Ferrous iron

4.1.10.5 Evaluation of Data Against Data Quality Objectives for AOC 29

This section discusses the evaluation of data against DQOs for AOC 29.

Decision 1 (Natural and Extent Determination): Deferred. Data gap analysis has been deferred until the IM-3 Treatment Plant is decommissioned.

Decision 2 (Data Sufficiency for EPC Calculation): Deferred. Data gap analysis has been deferred until the IM-3 Treatment Plant is decommissioned.

Decision 3 (Threat to Groundwater Determination): Deferred. Data gap analysis has been deferred until the IM-3 Treatment Plant is decommissioned.

Decision 4 (Data Sufficiency to Support CMS/FS): Deferred. Data gap analysis has been deferred until the IM-3 Treatment Plant is decommissioned.

4.1.11 AOC 30 – MW-20 Bench

This section provides details about AOC 30 – MW-20 Bench.

4.1.11.1 Setting

AOC 30, the MW-20 Bench, is located between the NTH and the Colorado River (as shown on Figure 2-1). This area was part of the floodplain reductive zone in situ pilot test. A portion of the MW-20 Bench was being used by PG&E for brine storage and loading facilities to support the IM-3 Treatment Plant (CH2M 2014a). As of July 2022, the MW-20 Bench is used for the final groundwater remedy. Portions of the MW-20 Bench are also periodically used by San Bernardino County, Southern California Gas Company, and BNSF as a staging area for storing maintenance materials and equipment.

During Phase 1 Groundwater Remedy construction, a thin layer of black material was found near the northwestern corner of the Carbon Amendment Building footprint. The material does not appear to be related to PG&E operations and likely predates the TCS. An opportunistic sample, Sample MW20-OPP-BLK, was collected from the black material in December 2019 and is described in Section 4.1.11.3.

This facility was established and is operated under modern waste management laws and will be closed in accordance with agency requirements. This AOC will not be fully investigated until groundwater remedy decommissioning sampling is conducted. AOC 30 is located on BOR property.

4.1.11.2 Unit History

PG&E operations on the MW-20 Bench began in 1998 and continue today. Initial PG&E activities at the MW-20 Bench consisted of groundwater monitoring well installation and groundwater monitoring. Starting in 2004, the MW-20 wells were used as extraction wells to support the IM-2 Batch Treatment Facility. This operation was eventually replaced by the IM-3 extraction well system constructed between April 2004 and March 2006, which includes the following extraction wells:

- At MW-20 Bench:
  - TW-2D
  - TW-2S
  - TW-3D
- Within the floodplain at PE-1

IM-2 operations began in March 2004 and continued through August 2005. During initial IM-2 operations, groundwater was extracted and stored in tanks on the MW-20 Bench. Extracted groundwater contained CrVI concentrations exceeding toxicity characteristic leaching procedure (TCLP) concentrations for hazardous waste, requiring the waste be transported offsite for treatment or disposal at a licensed hazardous waste treatment facility.

Beginning in July 2004 and continuing until the current groundwater treatment and extraction systems (IM-3) operations began in July 2005, a batch treatment plant operated on the MW-20 Bench. The batch treatment consisted of adding small quantities of sulfuric acid and ferrous chloride to the groundwater to convert CrVI to CrIII, and subsequent addition of small amounts of sodium hydroxide to raise the pH to a target range of 7.5 to 8.2 to precipitate the iron and chromium as hydrous iron oxide and chromium hydroxide, respectively.

PG&E stopped treating groundwater at the IM-2 Batch Treatment Facility in August 2005, as required by BLM (PG&E 2005a), and has fully closed the unit (CH2M 2009e). During closure of the IM-2 Batch Treatment Facility, some of the features were reconfigured to support the IM-3 treatment system.

As of July 2022, the IM-3 treatment system is no longer operational, and portions of the MW-20 Bench support the final groundwater remedy. Phase 1 of the groundwater remedy includes the following infrastructure:

NTH In situ Reactive Zone (IRZ) with 22 remediation wells (for injection or extraction)

- A network of 75 monitoring wells
- A Carbon Amendment Building
- A produced water conditioning system
- Piping and electrical conduit

The NTH IRZ was turned on December 22, 2021.

MW-20 Bench current features are shown on Figure 4-10 and include:

- Remedy-produced water storage tanks
- Carbon storage
- Carbon Amendment Building
- Parking area

- Security fence, gate, and lighting
- Other ancillary equipment
- Remedy monitoring wells:
  - IRZ-17
  - IRZ-18
  - IRZ-20
  - IRZ-21
  - IRZ-23
  - IRZ-25
- Remediation well clusters:
  - MW-77
  - MW-78
  - MW-81
  - MW-85
- IM-3 extraction wells:
  - TW-2D
  - TW-2S
  - TW-3D (no longer operational)

MW-20 Bench Groundwater Remedy features that are no longer present are also shown on Figure 4-10 and include:

- Three brine storage tanks and secondary containment that store reverse osmosis concentrate (that is, brine or high-salinity treated water for offsite disposal)
- Small pump station connected to the tanks to allow transferring of the brine to trucks, labeled as:
  - Brine Loading Pump
  - Off-Spec Transfer Pump
  - Drainage Pump
- A PVC-lined gravel truck lane
- Valve Vault No. 1, a partially buried building where extraction well pipelines pass through (the building also contained electrical equipment and instrumentation)
- The following monitoring wells:
  - MW-20-070
  - MW20-100
  - MW20-135
  - MW31-060
  - MW31-135

Spills at AOC 30

Two spills associated with PG&E's operations are known to have occurred at the MW-20 Bench. The first spill occurred on April 10, 2005, during operation of the IM-2 Batch Treatment Facility system and resulted in the release of clarifier (treatment) sludge consisting of precipitated solids and treated water. The second spill occurred on September 6, 2006, after cessation of the IM-2 system but during operation of the IM-3 Brine Management Facility, and consisted of brine from the reverse osmosis system used to reduce the naturally high levels of TDS in the extracted groundwater.

On April 10, 2005, the clarifier sludge spill involved the release of an estimated 1,700 to 1,800 gallons, with 1,400 to 1,500 gallons retained on the drip pad and recovered. An estimated 300 gallons of liquid drained onto the ground. Soil excavation and confirmation sampling were conducted during several events in April, May, June, and July 2005. Excavation continued until confirmation sample concentrations were less than the cleanup threshold of 31 mg/kg CrT. Excavation and confirmation sampling were completed on July 13, 2005. An estimated total of 130 yd^3 of affected soil were excavated and transported to a permitted offsite disposal facility. The excavation area was backfilled on July 18, 2005 (PG&E 2005b).

On September 6, 2006, a reverse osmosis brine concentrate spill occurred when a transfer hose ruptured during transfer of brine from one of the brine tanks to one of the storage tanks on the MW-20 Bench. The tanks' secondary containment flooded, and a portion of the brine flowed over the top of the containment berm onto the ground. An estimated volume of 400 gallons of brine overflowed the containment area. The "wetted soil" was excavated, and approximately 22 yd^3 of soil were transported and disposed of at an offsite facility as nonhazardous waste. After the wetted soil was excavated, PG&E collected one soil sample and analyzed it for CrT and sodium. The concentrations of CrT and sodium in the confirmation soil samples were 21.5 mg/kg and 848 mg/kg, respectively, which were less than the TCS BK values (39 mg/kg and 2,070 mg/kg, respectively).

There have also been releases in the vicinity of the MW-20 Bench during groundwater remedy construction and operation, as listed in Table 1-1. The largest spill occurred November 23, 2022, when approximately 1,400 gallons of extracted groundwater overflowed from the IRZ-23 well vault and onto the ground.

4.1.11.3 Analytical Results

Because of active use of the MW-20 Bench as part of IM-3, characterization sampling has not occurred at AOC 30. Soil data will be collected as part of the groundwater remedy decommissioning, removal of IM-3, or both.

Soil samples were collected at AOC 30 as part of the following activities:

- BK sampling
- Confirmation sampling following the 2005 spill
- Confirmation sampling following the 2006 spill
- Post-IM-2 closure confirmation sampling

Soil samples at AOC 30 were analyzed for metals only.

Soil samples were collected as part of the groundwater remedy baseline sampling and are presented in Appendix F. Figures showing results by analyte were not developed for AOC 30. Figure F-1 in Appendix F shows sample locations and combined exceedances. Screening level exceedances are briefly summarized in the following paragraphs.

Metals: Samples were collected from 22 locations at depths ranging from 0 foot to 4.5 feet bgs. The ISLs for the following analytes were exceeded:

- Lead (BK)
- Arsenic (BK)
- CrT (BK)

Exceedances are described as follows:

- Lead was detected exceeding its ISL (8.39 mg/kg) in 9 samples with depths from 0 foot to 2 feet bgs. The greatest lead concentration of 19 mg/kg was detected at MW20-OPP-BLK. Sample location MW20-OPP-BLK was collected from stained soil encountered at the approximate northwestern corner of the Carbon Amendment Building footprint on the MW-20 Bench.

- Arsenic was detected exceeding its ISL (11 mg/kg) in 2 samples from 1 foot to 2 feet bgs. The greatest arsenic concentration of 14 mg/kg was detected at AOC30-GRBS-03EXTRA. Sample location AOC30-GRBS-03EXTRA was collected from south of the brine storage tanks.
- CrT was detected exceeding its ISL (39.8 mg/kg) in 1 sample with a concentration of 63 J[6] mg/kg at sample location AOC30-OPP-MW-20-007. Sample location AOC30-OPP-MW-20-007 was collected from stained material encountered during excavation in the northern part of MW-20 Bench.

The lateral extent of exceedances is defined in the currently sampled areas by samples with results less than ISLs. The vertical extent of exceedances is not defined, as samples were only collected at one depth at each location.

CLP Inorganics: Samples were collected from 19 locations, and no sample results exceeded their respective ISLs.

PAHs: Samples were collected from 5 locations, and no sample results exceeded their respective ISLs.

TPH: Samples were collected from 7 locations at depths ranging from 0 foot to 2 feet bgs. One sample, AOC30-OPP-MW-20-003 exceeded the ISL (230 mg/kg) for TPH-d with a concentration of 300 mg/kg.

The lateral extent of exceedances is not defined southeast of the brine storage tanks. However, the RBC for TPH-d (5,700 mg/kg) was not exceeded, indicating the sample with ISL exceedance of TPH-d does not pose an unacceptable risk to receptors.

General Chemistry: Samples were collected from 18 locations. ISLs were not established for general chemistry parameters.

Pesticides: Pesticides were not analyzed in samples collected near AOC 30.

PCBs: Samples were collected from 2 locations, and no sample results exceeded their respective ISLs.

Dioxins and Furans: Dioxins and furans were not analyzed in samples collected near AOC 30.

4.1.11.4 AOC 30 Conceptual Site Model

The primary sources of contamination at AOC 30 are likely to have been incidental spills and potential leaks along piping (aboveground and underground) associated with the groundwater IMs, groundwater remedy construction, and storage and construction activities not associated with PG&E. The largest documented spill occurred November 23, 2022, when approximately 1,400 gallons of extracted groundwater overflowed from the IRZ-23 well vault and onto the ground (Table 1-1). The primary source medium at AOC 30 is soil; constituents released to surface soil could also be released to subsurface soil through infiltration. Based on the unit description, history, and previous soil characterization, the COPCs for soil within AOC 30 are as follows:

- Title 22 metals
- CrVI
- Sodium

4.1.11.5 Evaluation of Data Against Data Quality Objectives for AOC 30

This section discusses the evaluation of data against DQOs for AOC 30.

[6] The “J” data qualifier flag means that the analyte was present, but the reported value may not be accurate or precise because one or more QC specifications were not met, or concentration is greater than the method detection limit but less than the project quantitation limit.

Decision 1 (Natural and Extent Determination): Deferred. Data gap analysis has been deferred until after the groundwater remedy decommissioning sampling is completed.

Decision 2 (Data Sufficiency for EPC Calculation): Deferred. Data gap analysis has been deferred until after the groundwater remedy decommissioning sampling is completed.

Decision 3 (Threat to Groundwater Determination): Deferred. Data gap analysis has been deferred until after the groundwater remedy decommissioning sampling is completed.

Decision 4 (Data Sufficiency to Support CMS/FS): Deferred. Data gap analysis has been deferred until after the groundwater remedy decommissioning sampling is completed.

4.1.12 AOC 31 – Former Teapot Dome Oil Pit

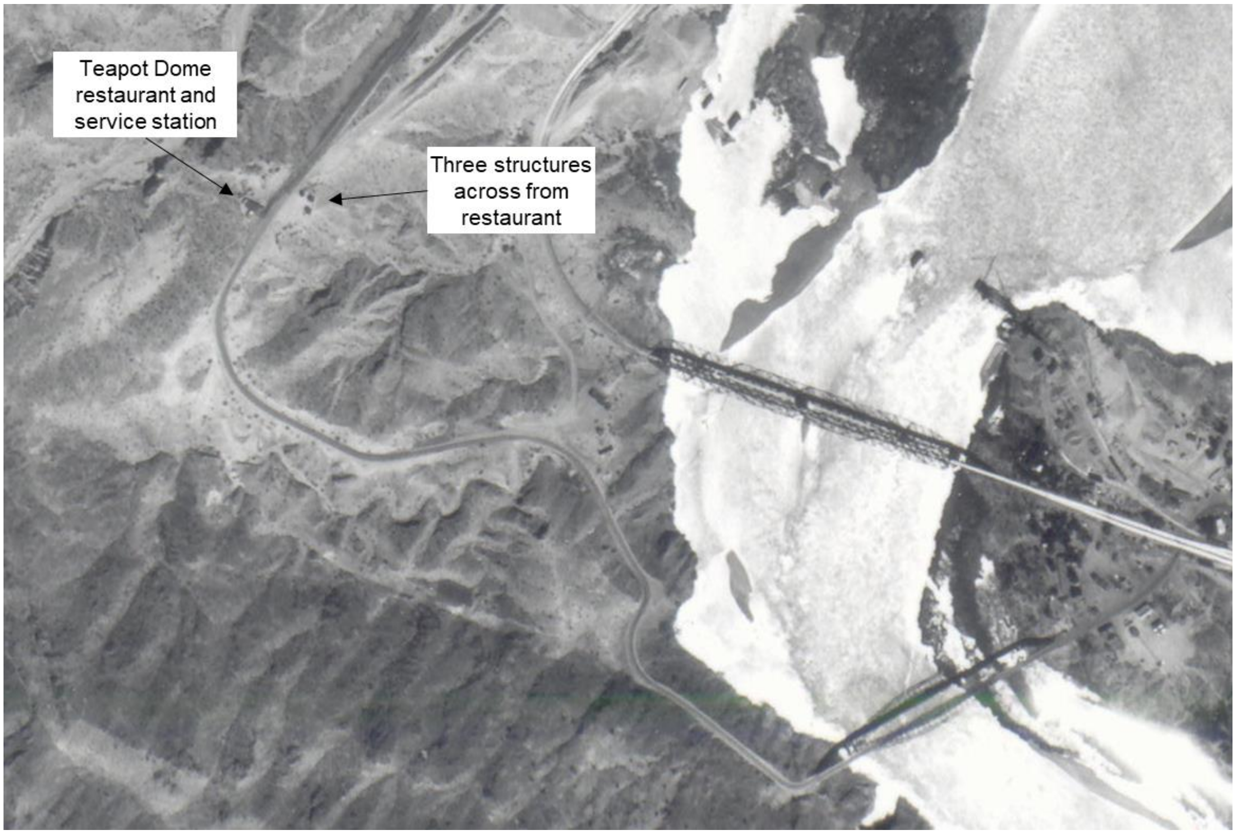
This section provides details about AOC 31 – Former Teapot Dome Oil Pit.

4.1.12.1 Setting

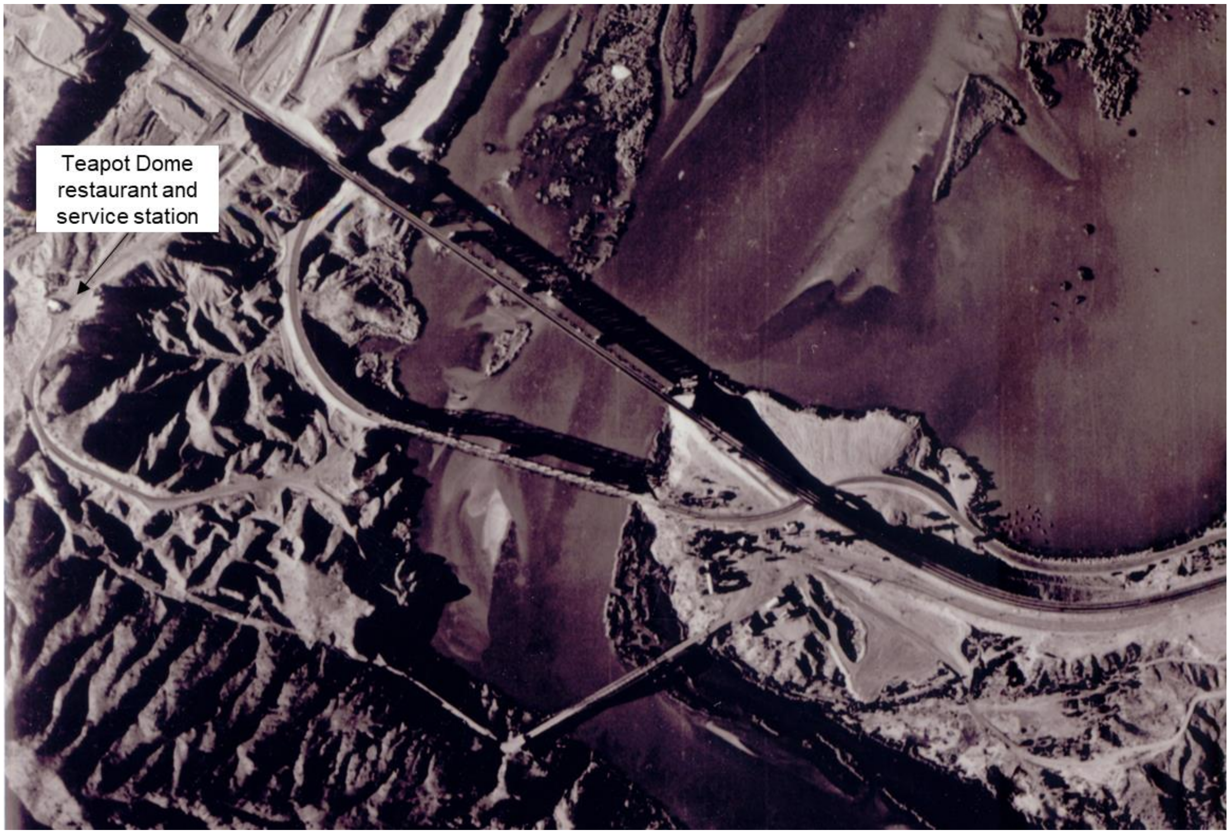
AOC 31, also known as the Teapot Dome Oil Pit, is located on the northeastern side of the TCS, just outside the compressor station fence line, as shown on Figure 2-1 and Figure 4-11. It is located within and overlaps with the Perimeter Area investigation. AOC 31 is located on property owned by PG&E.

4.1.12.2 Unit History

A former PG&E employee indicated that he had been told that the Teapot Dome restaurant and gas station provided oil changes, and that oil from vehicles was dumped into a pit. The Teapot Dome restaurant and gas station occupied a small portion of the property at the very northern edge of the current TCS and operated from sometime before 1936 to the late 1940s before construction of the TCS in 1951 (CH2M 2014a). Potential wastes from this AOC would predate the construction of the TCS. No records were found of underground storage tanks associated with the gas station. Photograph 4.1.12-1 is an aerial photograph of the Teapot Dome restaurant and gas taken before construction of the TCS.



Photograph 4.1.12-1: May 11, 1944, Aerial Photograph of Teapot Dome Restaurant and Service Station
Note: Photo taken before the bypass of Tea Pot Dome Road and construction of the TCS.



Photograph 4.1.12-2: Historical Aerial Photograph of Teapot Dome Restaurant and Service Station
Note: Photo taken before construction of the TCS.

A circular area of dark soil approximately 3 to 4 feet in diameter was determined to be the most likely potential location of the former oil pit. This dark soil is visible on Figure 4-11 within the area marked as AOC 31. A surface sample was collected from this area in 2015, and a boring to 10 feet bgs was installed in 2016. An opportunistic sample PA-OS-1 was collected at 9 feet to 9.5 feet bgs from a pipeline excavation near AOC 31 in 2011. Soil sampling results are presented in the following sections.

The area around AOC 31 is covered in gravel as of 2022. The TCS fence line has also been moved, and AOC 31 is within the fence line. The RFI/RI assessment was done while AOC 31 was outside the TCS fence line with a more conservative Part A assessment. The results of the Part A assessment are presented in the following sections.

4.1.12.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 31 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 31 comprises a unit of silty sand with gravel, with approximately 30% gravel, 50% sand, and 20% silt. Lithology was recorded to a depth of 10 feet bgs at AOC 31.

4.1.12.4 Analytical Results

Metals: Samples were collected from 2 locations at depths ranging from 0 foot to 10 feet bgs. The ISLs for the following analytes were exceeded at in surface samples in PA-08 (Table 3-12a):

- Copper (BK)
- Lead (BK)
- Zinc (BK)

Exceedances are described as follows:

- Copper was detected exceeding its ISL (16.8 mg/kg) in 1 sample with a concentration of 62 mg/kg at sample location PA-08 taken from depths between 0 foot and 1 foot at the surface. (Table 3-12a). Sample location PA-08 was collected in the former Tea Pot Dome oil pit area (Figure 2-1).
- Lead was detected exceeding its ISL (8.39 mg/kg) in 2 samples taken from depths between 0 foot and 3 feet bgs (Table 3-12a). The greatest lead concentration of 19 mg/kg was detected at sample location PA-08 at the surface to 1 foot bgs. Sample location PA-08 was collected in the former Tea Pot Dome oil pit area.
- Zinc was detected exceeding its ISL (58 mg/kg) in 1 sample with a concentration of 94 mg/kg at sample location PA-08 at the surface to 1 foot bgs (Table 3-12a). Sample location PA-08 was collected in the former Tea Pot Dome oil pit area.

The vertical extent of the exceedances has been defined by samples with results less than ISLs or not detected exceeding reporting limits. Only one surface sample, PA-08, was collected from the presumed location of the oil pit area, limiting the definition of lateral extent. Minimal exceedances collected from the stained soil area indicate impacts laterally are likely limited. As impacts in the center of the stained area (at PA-08) were minimal, it is assumed that the lateral impacts (outside of the stained area) are limited and defined.

CLP Inorganics: A single sample was submitted for CLP inorganics, PA-08, and sample results did not exceed any of the respective ISLs (Table 3-12b).

PAHs: Samples were collected from 2 locations at depths ranging from 0 foot to 10 feet bgs (Table 3-12c). PAHs were evaluated by calculating B(a)P equivalents for human health and LMW and HMW PAH values for ecological receptors.

B(a)P equivalent was detected exceeding its ISL (RRSL) (110 µg/kg) in 1 sample with a concentration of 150 µg/kg at sample location PA-08 at the surface to 1 foot bgs. The sample was collected in the former Tea Pot Dome oil pit area (Figure 2-1).

The lateral and vertical extent of the exceedances has been defined by samples with results less than ISLs or not detected exceeding reporting limits.

VOCs and SVOCs: Samples were collected from 2 locations at depths ranging from 0 foot to 10 feet bgs. Only chloroform was detected, and no sample had detected results that exceeded their respective ISLs (Table 3-12d).

TPH: Samples were collected from 2 locations, and no sample results exceeded their respective ISLs (Table 3-12e).

General Chemistry: Samples were collected from a single location (Table 3-12f). ISLs were not established for general chemistry parameters.

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 2 locations, and no sample results exceeded their respective ISLs (Table 3-12g).

Dioxins and Furans: Dioxins and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans.

4.1.12.5 AOC 31 Conceptual Site Model

Exhibit 4-14 presents the following information for AOC 31:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

The primary sources of contamination at AOC 31 are likely to have been discharge of used automobile engine oil into the pit, and incidental spills of new and used oil. The potential type and quantity of any materials released at this unit are unknown. Constituents released would have been released in liquid form (CH2M 2014a).

A sample location (PA-08) was placed to target the stained zone and assumed location of the oil pit. Materials suggestive of an oil pit were not encountered during sampling, such as:

- Odiferous soils
- Elevated photoionization detector (PID) readings
- Extremely stained soils
- An oil pit structure

The ND results or relatively low-level detections of PAHs and TPH are not indicative of large quantities of automobile engine oil being released in this area. As such, there is uncertainty regarding the location or presence of the oil pit.

PCBs were detected less than the ISL in one shallow soil sample. No other PCBs were detected. The presence of PCBs is also not suggestive of an oil pit. Low-level concentrations of PAHs, TPH, and PCBs may be suggestive of a similar suite of constituents found in TCS (that is, Part B) soils. These constituents may be from general station activities, such as the application of oil to surface soil for dust control.

The primary source media are shallow soils. From surface soil, contaminants could have migrated to shallow and deeper soils. The presence of PAHs, TPH, and metals exceeding BK concentrations are confined to the top 3 feet of soil in AOC 31. Concentrations in deeper soils do not indicate contamination migrated beyond shallow soil. COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 31, this migration may result in COPCs at the top of the hillside migrating down the hillside into AOC 11.

Exhibit 4-14. Conceptual Site Model – AOC 31
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Discharge of used automobile engine oil into the pit, and incidental spills of new and used oil **COPCs include:** • Metals • PAHs • TPH	• Shallow soil	• Percolation or infiltration	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[a]	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals

[a] Enclosed space accumulation refers to any area where vapor can accumulate.

4.1.12.6 Evaluation of Data Against Data Quality Objectives for AOC 31

This section discusses the evaluation of data against DQOs for AOC 31.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-12a through 3-12g provide analytical results, and Figure 3-1 shows the sample locations. Table 3-12h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and Category 2 data were used to delineate the nature and extent of contamination. Considering these data only, samples were collected from 2 locations (PA-08 and PA-OS1) ranging from 0 foot to 10 feet bgs for AOC 31. There are no AOC 31 specific samples.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the Soil RFI/RI Work Plan, data were insufficient to complete the Decision 2 evaluation. Samples collected during implementation of the Soil RFI/RI Work Plan filled this data gap. A total of 6 samples were collected

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): No samples from AOC 31 were analyzed for soil characteristics during implementation of the RFI/RI Work Plan. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

Additional Considerations: There is uncertainty regarding the location and presence of the oil pit.

4.1.13 UA-1 – Potential Pipe Disposal Area

This section provides details about UA-1 – Potential Pipe Disposal Area.

4.1.13.1 Setting

UA-1, also known as the Potential Pipe Disposal Area, is located west of the TCS, and north of the Gas Pipeline Road near the former evaporation ponds (Figure 2-1). During Site historical data gathering, a former employee identified an area just north of the Gas Pipeline Road near the former evaporation ponds where potential asbestos-wrapped pipes were buried and disposed. The area was immediately north of the pipeline road, across from the northern boundary of the former pounds. UA-1 is located on HNWR property within a culturally sensitive area.

4.1.13.2 Unit History

During the Site historical data gathering, a former employee described 20-foot lengths of asbestos-covered metal pipes as having been buried in a trench, shown on Figure 2-1 as UA-1. The former PG&E employee indicated the pipes were 3 to 4 inches in diameter and were aboveground pipes. These pipes were likely from the TCS, as some aboveground pipes at the TCS were known to contain asbestos wrapping for thermal insulation. These aboveground pipes are different from the pipes coated with corrosion resistant tar wrap buried in SWMU 1 and AOC 1.

The Tribes have expressed their desire to avoid or greatly limit activity in this area. At DOI's direction, no intrusive sampling was performed at UA-1 in fulfillment of the RFI/RI Work Plan. To date, investigation activities at UA-1 have been limited to surface observations, geophysical surveys, and a review of historical aerial photographs to identify potential buried pipe in the area.

4.1.13.3 Geophysical Surveys and Visual Inspections

This section provides details about geophysical surveys and other visual inspections at UA-1.

Initial Survey

During the 2008 field investigation, a geophysical survey was performed in UA-1 to evaluate the potential presence of buried asbestos-wrapped metal pipes in this area and to identify the location of underground utility infrastructure. Results of the geophysical survey did not suggest the presence of buried pipes in this area; however, several small metallic anomalies and two undifferentiated utilities (UUs) were observed sporadically across the UA-1 area (Figure 4-12).

One UU was truncated in the north and extended out of the survey area in the south, and the other UU was in the southern portion of the survey area trending east–west within the alignment of the access road adjacent to UA-1. The UU within the access road was identified as the former wastewater transference pipeline that transferred nonhazardous wastewater from the TCS to the evaporation ponds. This pipeline was abandoned in place in 2007, when it was replaced with a new transfer pipeline. The complete geophysical survey results are presented in Appendix C of the *Soil RCRA Facility Investigation/Remedial Investigation Work Plan* (CH2M 2013a).

Following the geophysical survey, further visual assessment of the area in the vicinity of UA-1 identified miscellaneous pipe clamps and small quantities of insulation on the ground surface at a second location approximately 200 to 250 feet to the east of UA-1. A pronounced soil mound approximately 100 feet long by 25 feet wide was also observed in this area and is shown on Figure 2-1 as UA-1A.

During a follow-up interview with the same former employee in early 2011, the employee indicated that he did not remember the burial location with precision. He indicated that the following areas are all potential locations for the burial:

- Original location (UA-1)
- Second location described in the preceding paragraph (UA-1A)
- Third location (UA-1B) to the west of the originally identified location

The employee indicated that the burial occurred in the 1970s or 1980s, and his memory did not allow him to precisely determine which of the three locations are the most likely burial site.

Follow-up Surveys at UA-1A and UA-1B

In 2015, an asbestos survey and a geophysical survey were conducted at UA-1A and UA-1B. During the asbestos survey, debris samples were collected from two locations and submitted for laboratory analysis of asbestos. Results indicated the following:

- Asbestos was present in both debris types (a pipe gasket and hose clamps with fibrous material attached to residual paint). Results indicated chrysotile was present in the gasket and hose clamp samples at 20 and 15%, respectively.
- None of the asbestos-containing samples were friable; therefore, the material did not present a hazard to staff performing nonintrusive geophysical survey.

Following the asbestos survey, a geophysical survey was conducted using the following tools:

- Terrain conductivity
- Total field magnetics
- Metal detection
- (For UA-1A only) GPR

Figures 4-12 and in Appendix B, Attachment B6 provide the results of the geophysical survey. Findings include:

- UA-1A:
  - Two subsurface anomalies were detected with the total field magnetics survey. These anomalies could be associated with buried pipes or metallic debris.
  - A follow-on survey with metal detection and GPR did not detect anomalies that correlated with the total field magnetics survey, but did identify a linear anomaly between the two areas (with metal detection).
- UA-1B West – No subsurface anomalies were detected.
- UA-1B East – One subsurface anomaly was detected with the terrain conductivity, which suggests the presence of nonconductive buried debris (for example, wood or brick). Alternatively, this could be associated with a change in soil type or moisture content. The metal detection survey was negative.

Trenching was not conducted to evaluate subsurface anomalies because of the cultural significance of the area and the inert nature of the suspected buried pipes.

4.1.13.4 Review of Historical Aerial Photographs

As requested by the DTSC in a December 13, 2010 email, PG&E performed a detailed historical aerial photograph analysis near UA-1 and the immediate surrounding area to identify evidence of soil disturbances, including potential pipe disposal. All available and applicable historical aerial photographs that span from 1936 to 2004 were reviewed in detail. The date for one of the aerial photographs reviewed is not known with certainty, although it was taken after 1973 and before 1989. Additionally, aerial photographs from the following years were also viewed but did not show UA-1 or the immediate vicinity; therefore, these aerial photographs are not discussed further in this document:

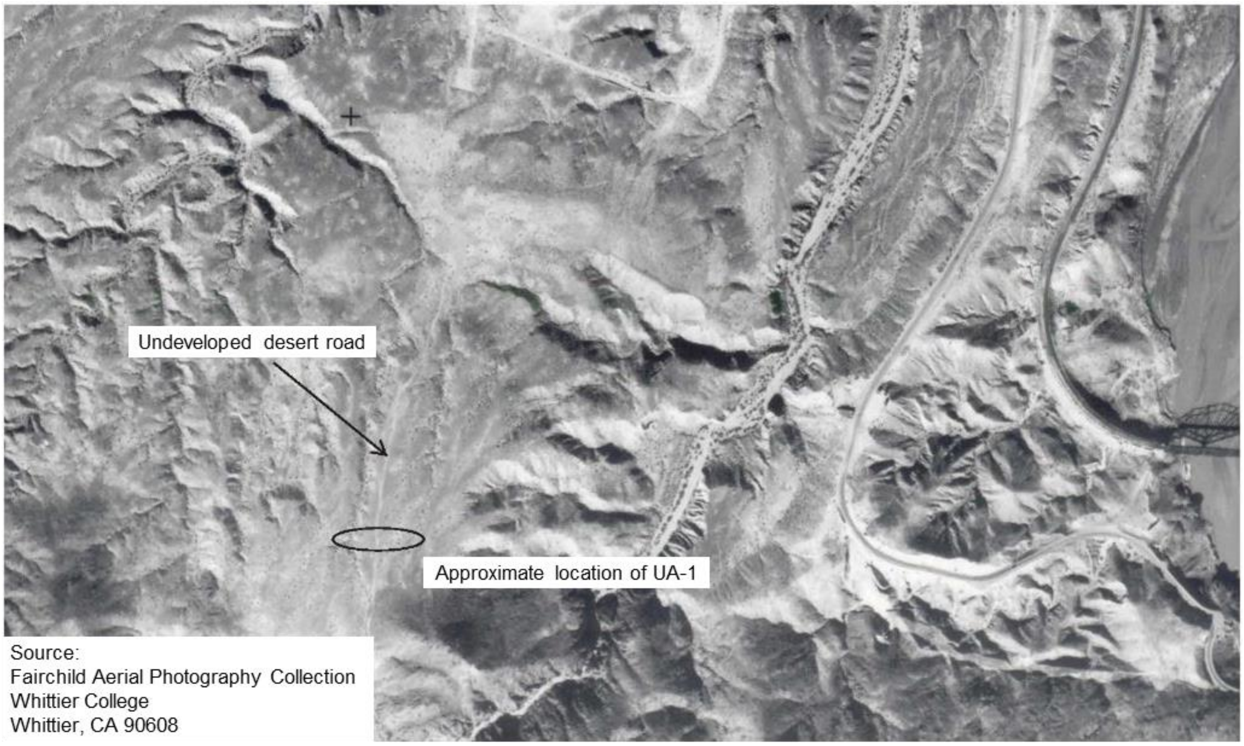
- Late 1940s
- 1947
- 1951
- 1957
- 1960
- 1966
- 1970
- 1973
- 1976
- 1981
- 1983
- 1995
- 2001
- 2005
- 2006

Exhibit 4-15 presents a summary of the information observed in each of the applicable aerial photographs reviewed: Photographs 4.1.13-1 through 4.1.13-17. The approximate location of UA-1 is shown on these photographs.

Exhibit 4-15. Summary of Aerial Photographs for UA-1, 1936 to 2004
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

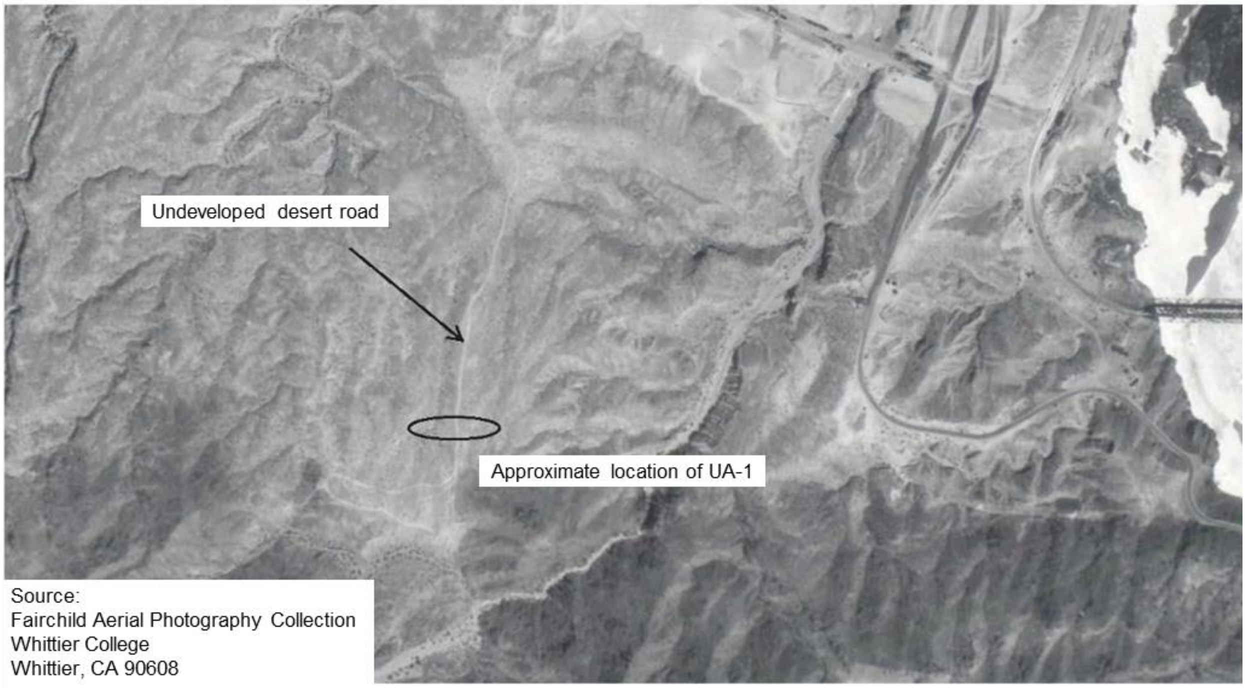
Year	Description
1936, 1942, and 1944 (Photographs 4.1.13-1 through 4.1.13-3)	UA-1 and the surrounding area are undeveloped. An undeveloped desert road with a north–south orientation is located in the general area of UA-1 (see arrows on photographs). No evidence of other constructed features or other soil disturbance is visible in UA-1 or surrounding area.
1953 (Photograph 4.1.13-4)	The TCS (built in 1951) is present in this aerial photograph (arrow 1). The pipeline ROW and road south of UA-1 is now visible (arrow 2). There are several smaller roads, paths, and turnaround loops stemming off the pipeline ROW (arrow 3). What appears to be a small, constructed structure is present north of the pipeline ROW (arrow 4). Soil disturbance appears to be limited to ROW clearing and road construction.
1955 and 1956 (Photographs 4.1.13-5 and 4.1.13-6)	The small, constructed structure north of the pipeline ROW is no longer visible. No significant changes in constructed features or soil disturbance in UA-1 and the surrounding area can be seen between the 1953, 1955, and 1956 aerial photographs.
1961 and 1962 (Photographs 4.1.13-7 and 4.1.13-8)	A new pipeline ROW or pipeline road is visible to the north and parallel to the existing pipeline ROW (arrow 1). Several access roads connecting the new pipeline ROW and the existing pipeline ROW are visible (arrow 2). No evidence of other constructed features or other soil disturbance is visible in UA-1 or the surrounding area.
1964 (Photograph 4.1.13-9)	Several white areas near the pipeline ROWs are visible in this photograph (arrow 1). These white areas were not identified in the previous aerial photos, perhaps because those photos were overexposed. A black feature is visible to the south of the pipeline road (arrow 2). No other changes can be seen between the 1961 and 1962 photographs and the 1964 photograph.
1967 (Photograph 4.1.13-10)	No significant changes in constructed features or soil disturbance in UA-1 and the surrounding area can be seen between 1964 and 1967 photographs.
1969 (Photograph 4.1.13-11)	The white areas near the pipeline ROWs are no longer visible in this photograph. No significant changes in constructed features or soil disturbance in UA-1 and the surrounding area can be seen between 1967 and 1969 photographs.
1975 (Photograph 4.1.13-12)	The old evaporation ponds are visible south of the pipeline ROW (arrow 1). No other changes in constructed features or soil disturbance in UA-1 and the surrounding area can be seen between 1969 and 1975 photographs.
Undated Photograph, Between 1973 and 1989 (Photograph 4.1.13-13)	What appears to be a constructed structure is visible south of the UA-1 area along the pipeline ROW (arrow 1). The old evaporation ponds are visible south of the pipeline road (arrow 2). Dark marks or shadows appear on a portion of the pipeline road to the east of the UA-1 area (arrow 3).
1992, 1994, 1997, 2004 (Photographs 4.1.13-14 through 4.1.13-17)	The northernmost pipeline ROW was widened significantly (arrow 1) for the installation of the new Mojave Gas Pipeline in 1992. The old and new evaporation ponds are visible south of the pipeline road (arrows 2 and 3).

ROW = right-of-way

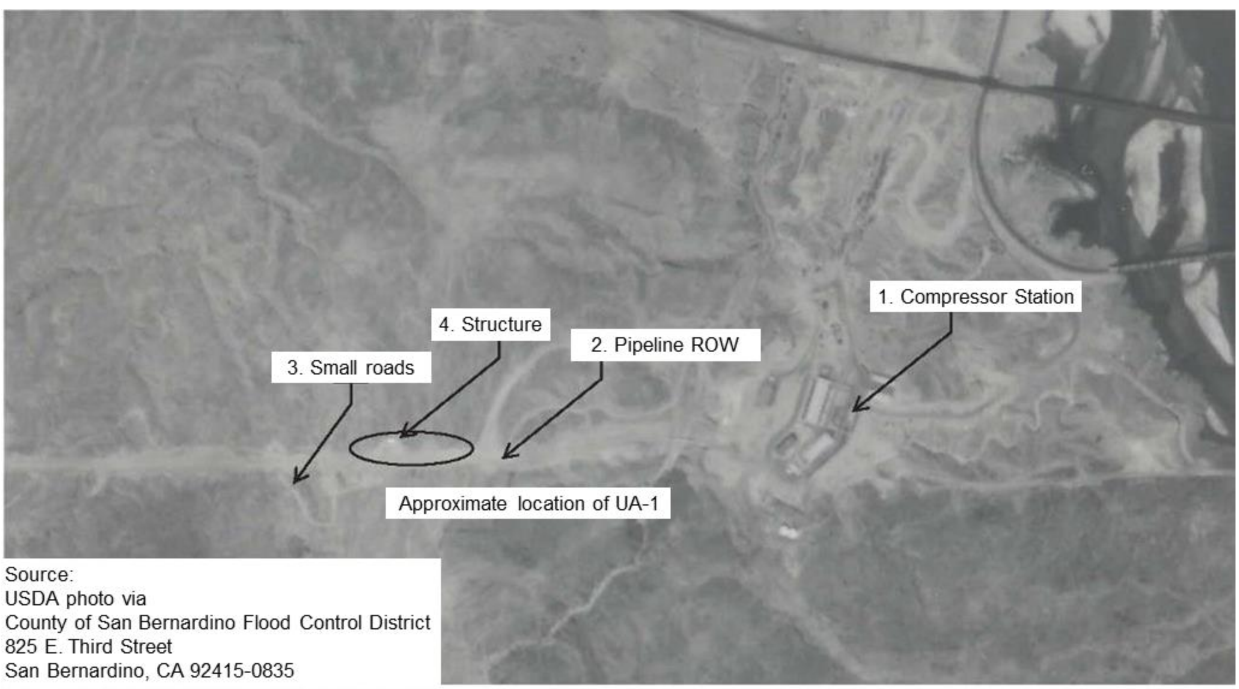


Photograph 4.1.13-1: 1936 Aerial Photograph, Topock Compressor Station Area Before Construction

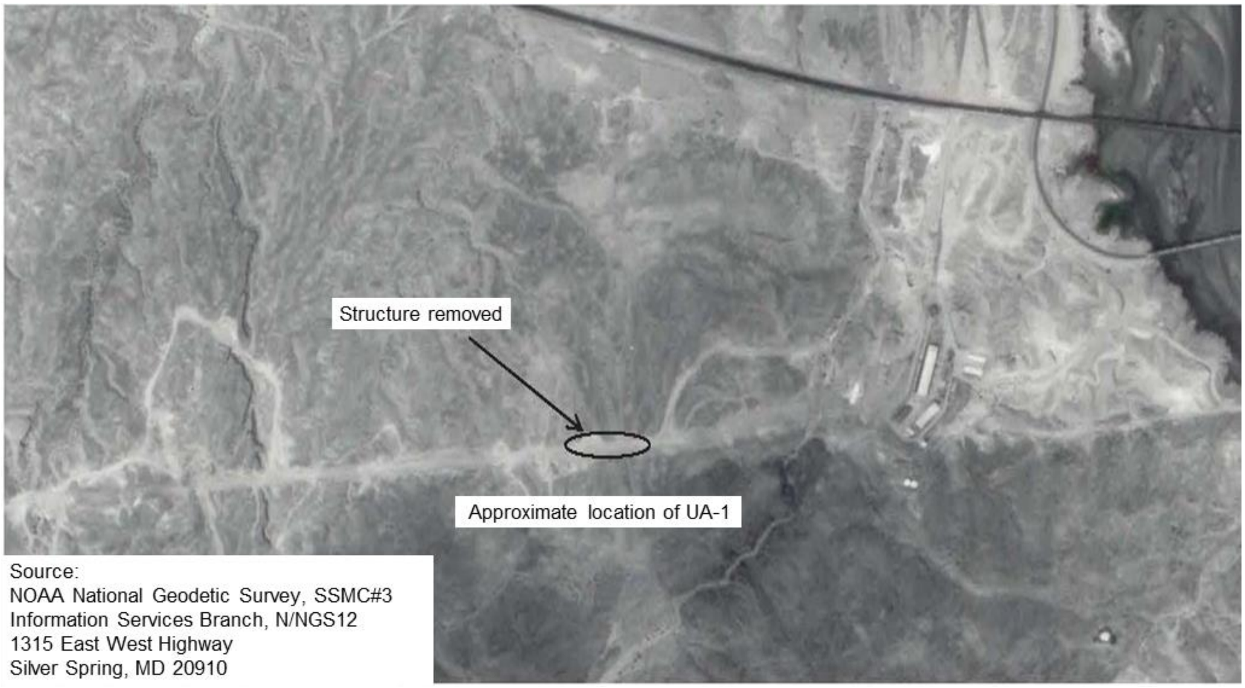
Photograph 4.1.13-2: 1942 Aerial Photograph, Topock Compressor Station Area Before Construction



Photograph 4.1.13-3: 1944 Aerial Photograph, Topock Compressor Station Area Before Construction

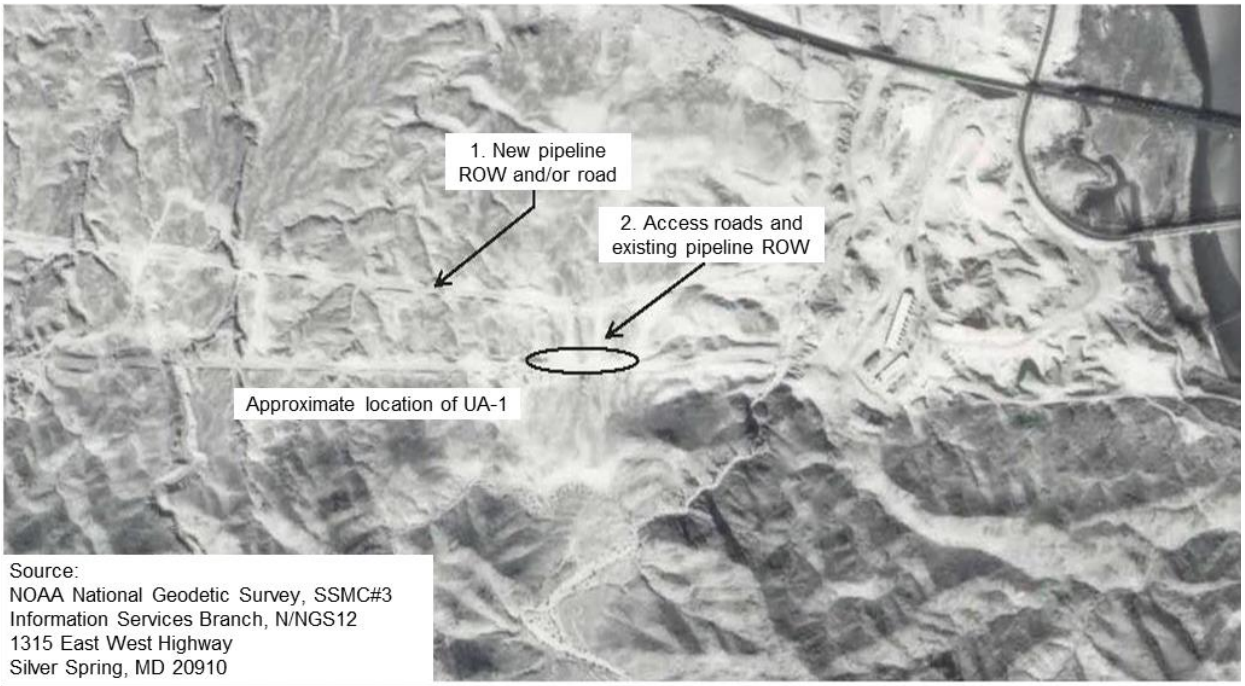


Photograph 4.1.13-4: 1953 Aerial Photograph, Topock Compressor Station Area



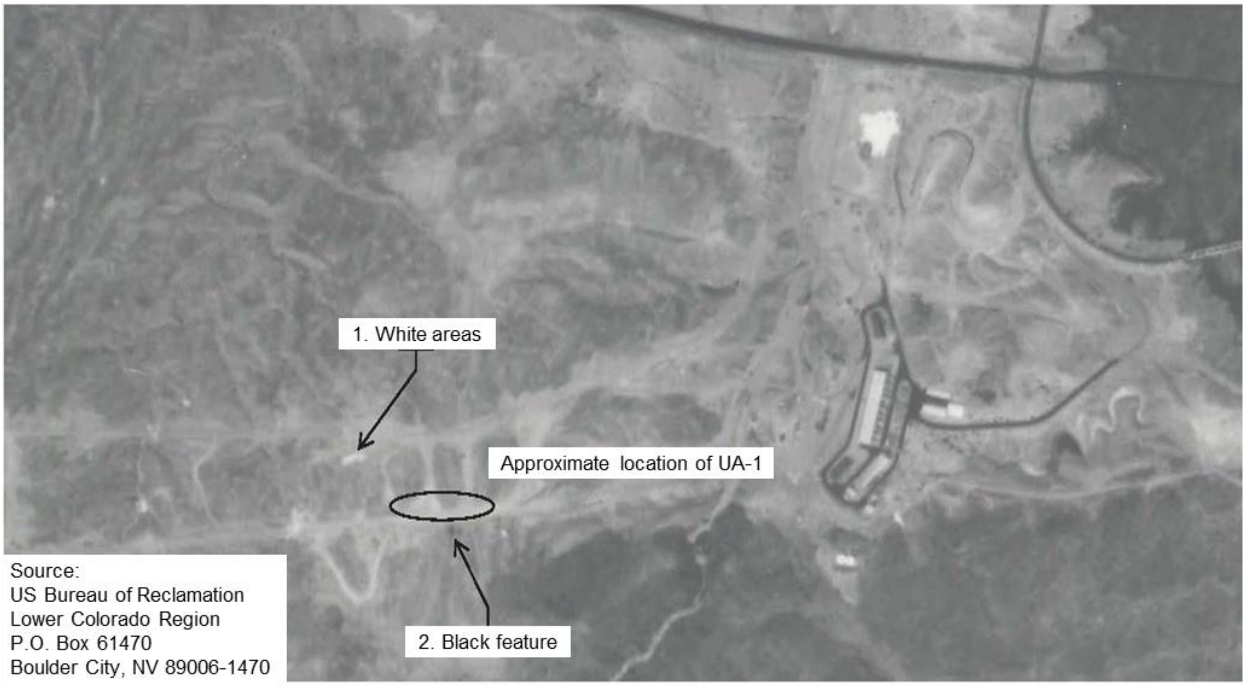
Photograph 4.1.13-5: 1955 Aerial Photograph, Topock Compressor Station Area

Photograph 4.1.13-6: 1956 Aerial Photograph, Topock Compressor Station Area



Photograph 4.1.13-7: 1961 Aerial Photograph, Topock Compressor Station Area

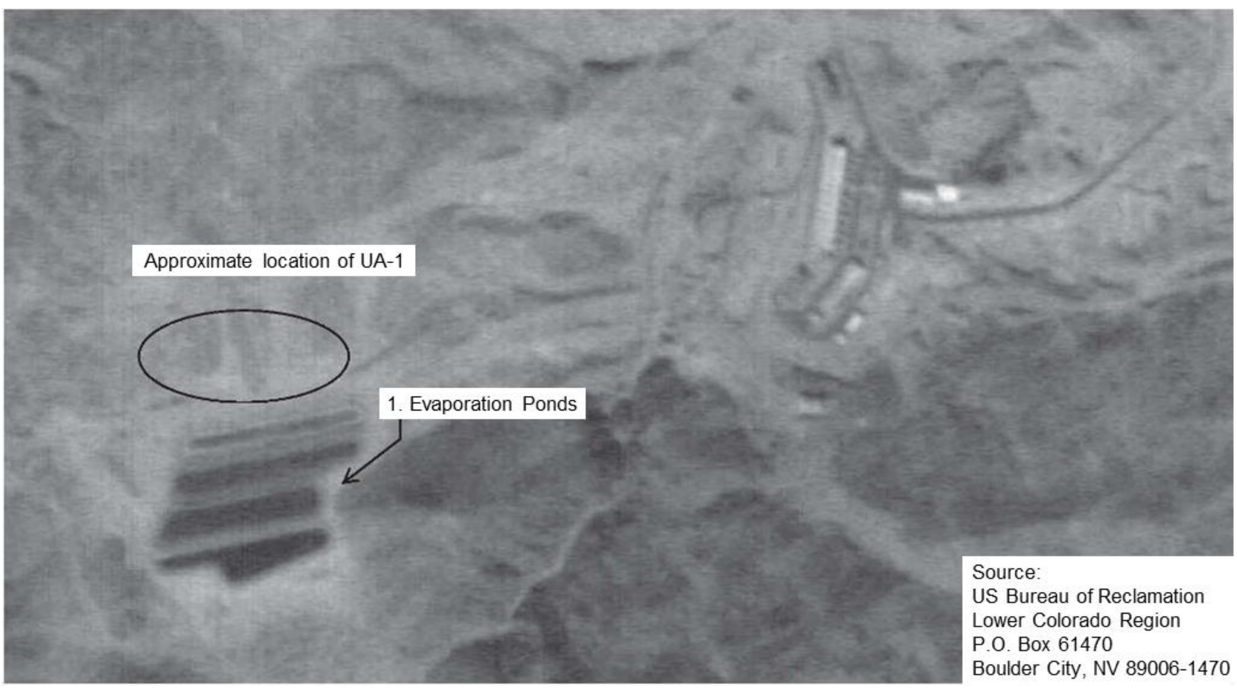
Photograph 4.1.13-8: 1962 Aerial Photograph, Topock Compressor Station Area



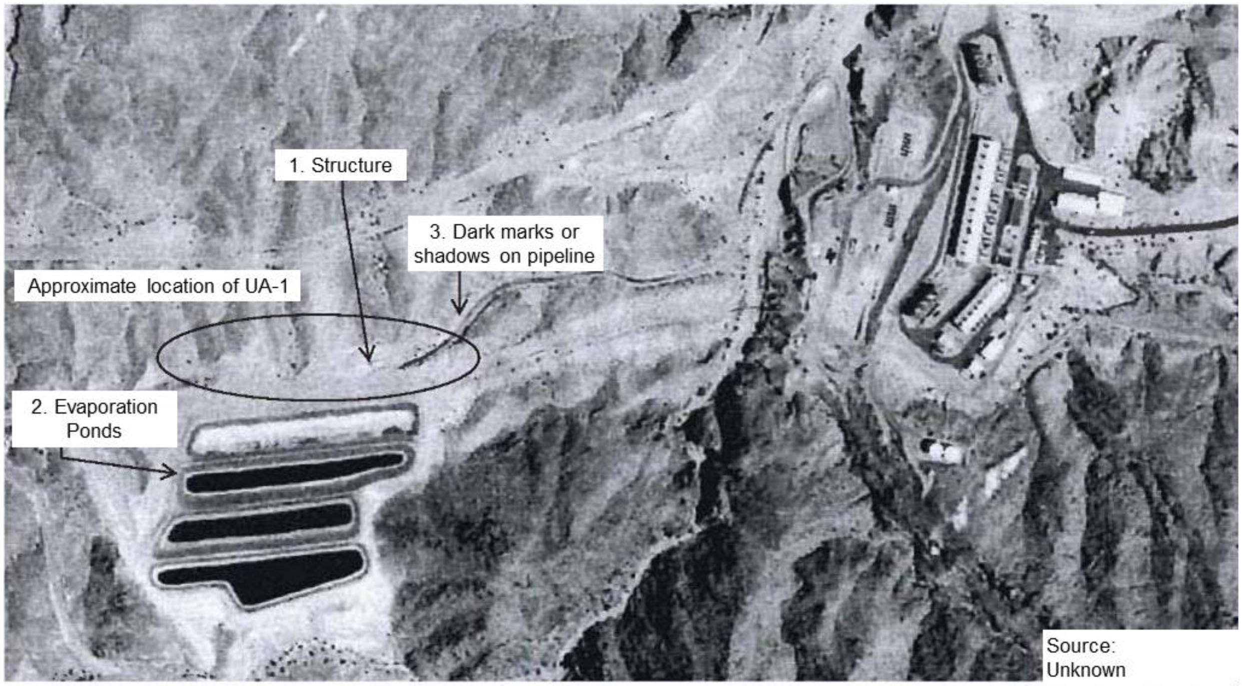
Photograph 4.1.13-9: 1964 Aerial Photograph, Topock Compressor Station Area

Photograph 4.1.13-10: 1967 Aerial Photograph, Topock Compressor Station Area

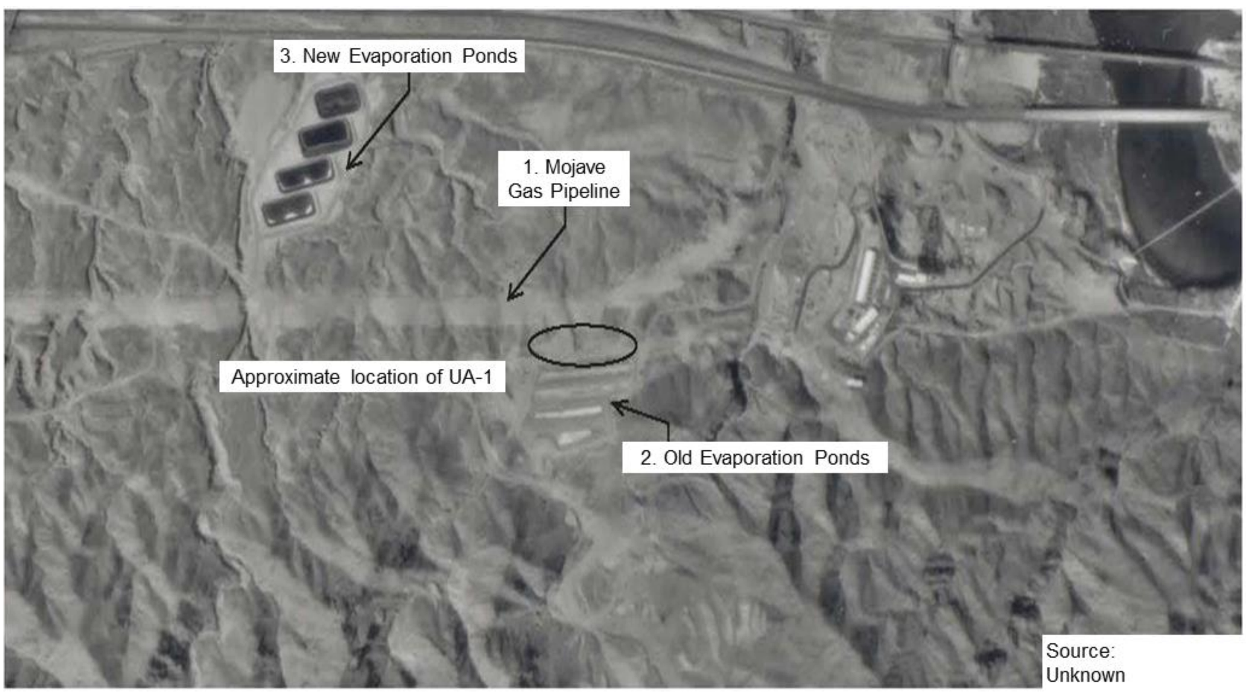
Photograph 4.1.13-11: 1969 Aerial Photograph, Topock Compressor Station Area



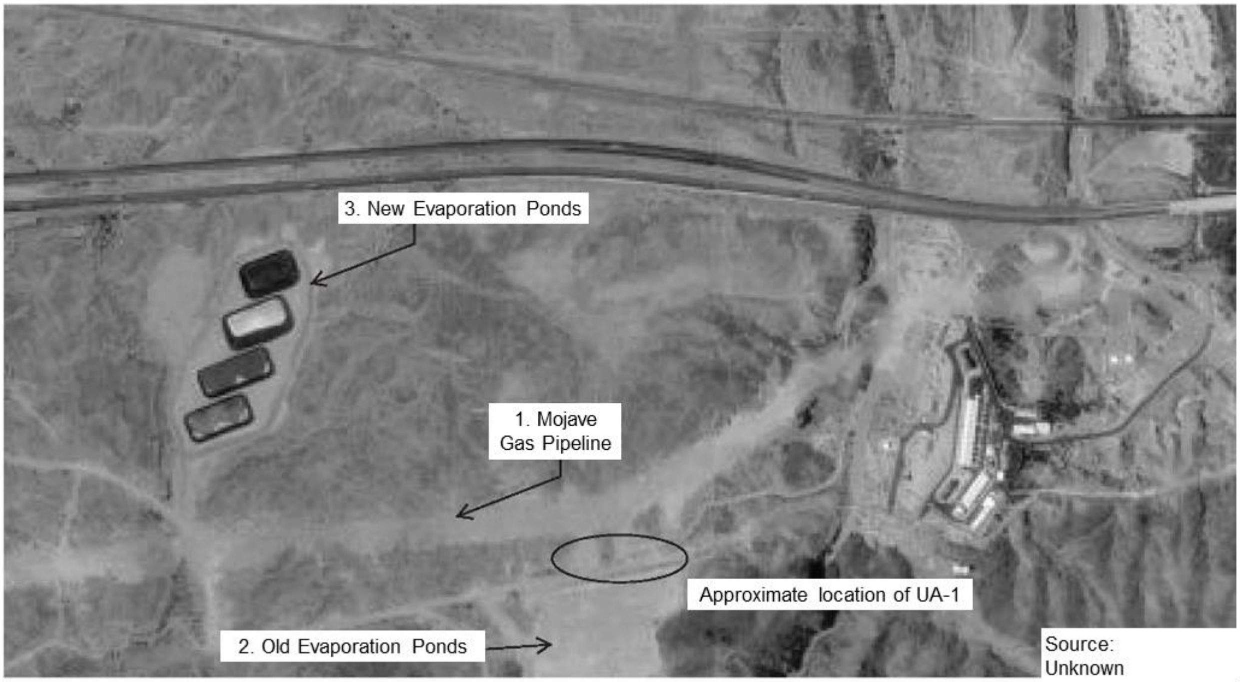
Photograph 4.1.13-12: 1975 Aerial Photograph, Topock Compressor Station Area



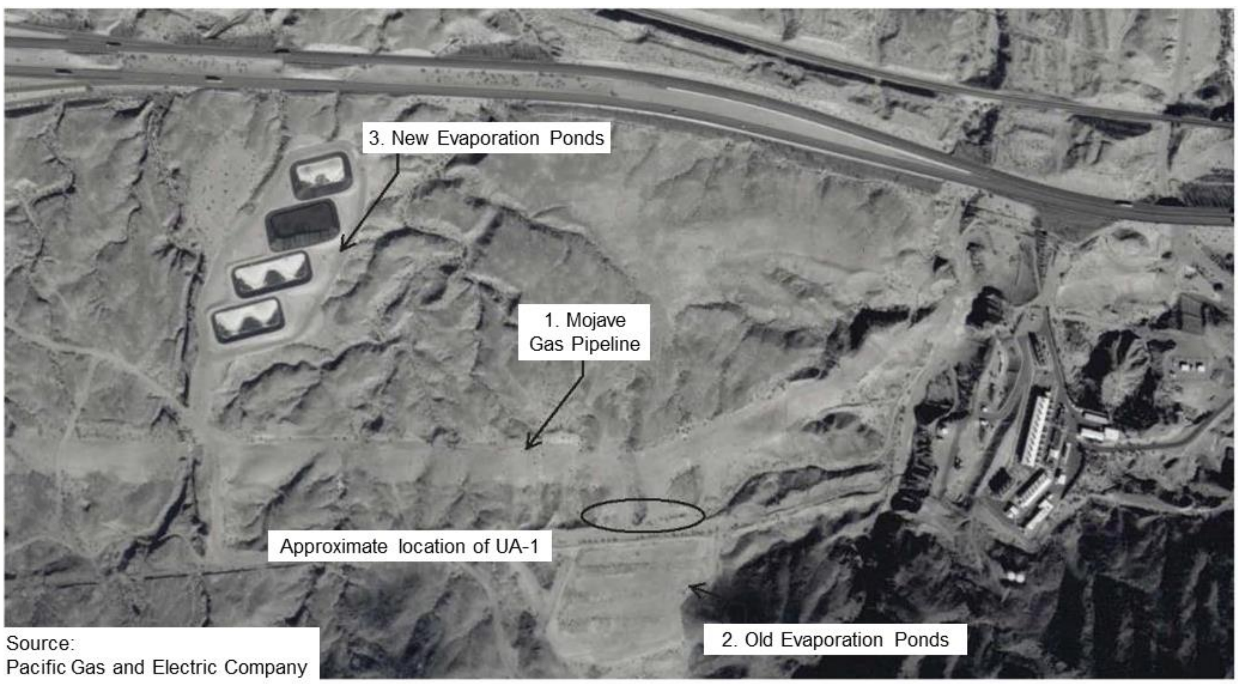
Photograph 4.1.13-13: Undated Ariel Photograph, between 1973 and 1989, Topock Compressor Station Area



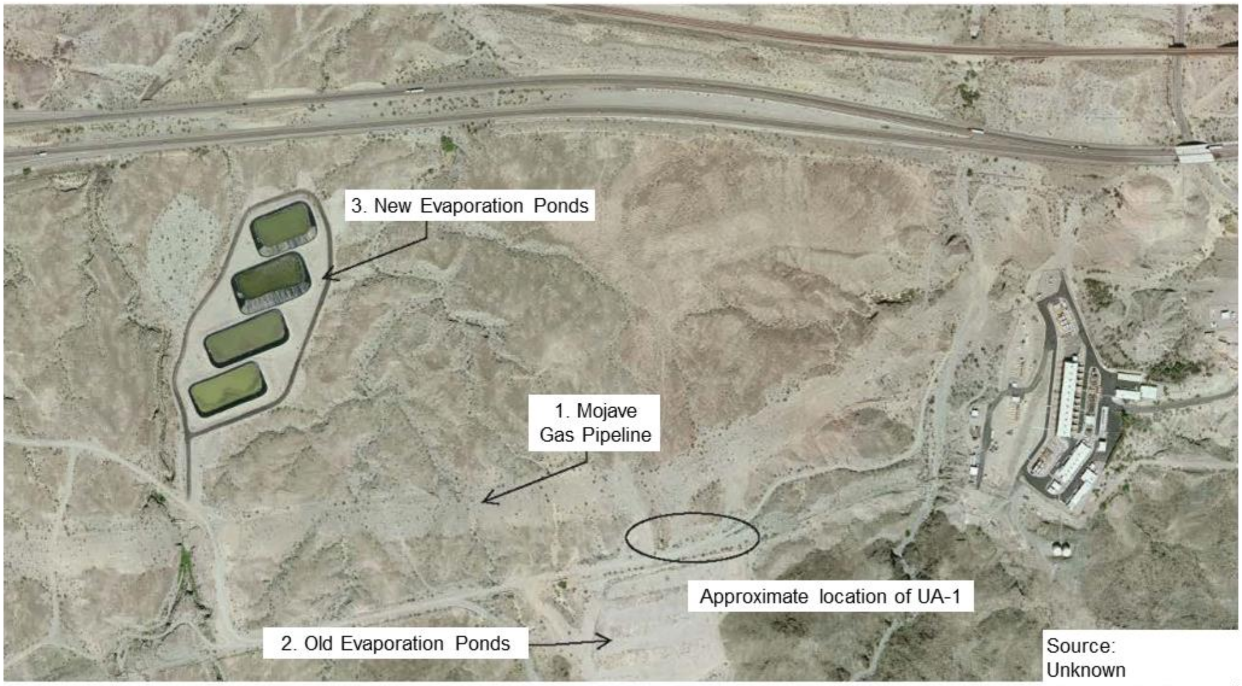
Photograph 4.1.13-14: 1992 Aerial Photograph, Topock Compressor Station Area



Photograph 4.1.13-15: 1994 Aerial Photograph, Topock Compressor Station Area



Photograph 4.1.13-16: 1997 Aerial Photograph, Topock Compressor Station Area



Photograph 4.1.13-17: 2004 Aerial Photograph, Topock Compressor Station Area

4.1.13.5 Analytical Results

No intrusive sampling was performed at UA-1 in fulfillment of the RFI/RI Work Plan. Investigation was suspended with support of the landowner due to Tribal cultural sensitivity and its proximity to the Topock Maze.

4.1.13.6 UA-1 Conceptual Site Model

Exhibit 4-16 presents the following information for UA-1:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

The following paragraphs provide additional information about these topics:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary potential source of contamination in UA-1 is the potentially buried asbestos-wrapped metal pipes. Constituents released would have been released in solid form.

Exhibit 4-16. Conceptual Site Model, UA-1 – Potential Pipe Disposal Area
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Potential disposal of asbestos-wrapped pipes **COPCs include:** • Asbestos	• Surface soil • Subsurface soil	• Percolation or infiltration • Potential entrainment in stormwater and /surface water runoff • Potential resurfacing of buried pipes as a result of erosion	• Subsurface soil • Surface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals

No soil analytical data are available for UA-1. Two geophysical surveys were performed in UA-1, as discussed in Section 4.1.13.3. Results of the 2011 geophysical survey did not suggest the presence of buried pipes in this area. Two magnetic anomalies that could be associated with buried pipes were detected in the 2015 geophysical survey. However, these anomalies were not confirmed with follow-on surveys with metal detection and GPR. A 2015 asbestos survey of debris from UA-1 indicated asbestos was present in the debris samples but was not friable. The presence of buried asbestos-wrapped metal pipes at UA-1 is uncertain and has not been confirmed.

The primary release mechanisms are direct releases of contaminated particulates or leaching of contaminants from the potential buried asbestos-wrapped pipes. Contaminants present in these materials could have been released to shallow or subsurface soils as particulates. Disturbances of the potential buried pipes or surfacing of potential buried pipes could also result in particulates released to surface soil. Therefore, the primary source media consist of surface, shallow, and subsurface soils.

4.1.13.7 Evaluation of Data Against Data Quality Objectives for UA-1

This section discusses the evaluation of data against DQOs for UA-1.

No intrusive sampling was performed at UA-1 in fulfillment of the RFI/RI Work Plan. Investigation was suspended with support of the landowner due to Tribal cultural sensitivity and its proximity to the Topock Maze.

4.1.14 UA-2 – Former 300B Pipeline Liquids Tank Area

This section provides details about UA-2 – Former 300B Pipeline Liquids Tank Area.

4.1.14.1 Setting

UA-2, also known as the Former 300B Pipeline Liquids Tank Area, is located southeast of the TCS, as shown on Figure 2-1 and Figure 4-13. PG&E's 300B pipeline was formerly equipped with a 900-gallon-capacity aboveground drip tank. The 300B Pipeline Liquids Tank was formerly used to collect pipeline liquids from the 300B natural gas pipeline. The drip tank was located on a shelf in the hill next to a section of old Route 66. The tank was 2 feet 10 inches in diameter and 20 feet long, located on two concrete saddle supports. The tank pad was unpaved (CH2M 2006).

4.1.14.2 Unit History

In 1994, oil-stained soil was observed underneath and immediately adjacent to a portion of the tank, and an initial Site investigation was performed on December 2, 1994. Samples were analyzed for TPH-mo. Low levels of TPH-mo were detected at 1.2 feet and 2 feet bgs (CH2M 2006).

The tank was removed in 1995. One surface soil sample was collected on April 16, 1996, to characterize the stained soil for future disposal (CH2M 2006). The soil sample was analyzed for the following analytes:

- Total recoverable petroleum hydrocarbons (TRPH)
- VOCs
- SVOCs
- PCBs
- California Assessment Method 17 metals

TRPH was detected at an elevated concentration. Metals, VOCs, SVOCs, and PCBs were sampled at a location coincident with the greatest level of TRPH, and analytical results indicated no elevated concentrations of these constituents; therefore, TRPH was considered the only COC.

A closure plan was submitted in May 1996 to remove the TRPH-impacted soil (Trident 1996a). The cleanup was implemented, and soil excavation was conducted between July 18 and September 26, 1996. Four rounds of excavation were performed, with a total excavation depth of 5.5 feet bgs. Confirmation samples were collected after each round of excavation. The cleanup target was 1,000 mg/kg TRPH. Samples collected during the last two sampling events indicated that the soil remaining in place below and adjacent to the excavation contained TRPH at concentrations ranging from less than analytical detection limits to 150 mg/kg. The soil excavation and sampling results are documented in the *Closure Certification Report* (Trident 1996b).

The County of San Bernardino, County Fire Department, Hazardous Materials Management Division issued a closure letter on June 9, 1997, confirming the completion of the Site investigation and remedial action for the contaminated soil at this Site.

In 2006, DTSC requested additional sampling at this Site. The area of potential contamination is small (20 feet by 40 feet). Based on DTSC's request, the Soil Part A Work Plan recommended further characterization at UA-2 (CH2M 2006).

Part A Phase 1 and historical soil samples were collected in the area in and around where the former AST had been located.

4.1.14.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for UA-2 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at UA-2 comprises a relatively homogeneous unit of sandy silt, with approximately 10% gravel up to 0.5 inch in diameter, 30 to 40% sand, and 50 to 60% silt. Lithology was recorded to a maximum depth of 6 feet bgs at UA-2.

4.1.14.4 Analytical Results

Metals: Samples were collected from 6 locations at depths ranging from 0 foot to 6 feet bgs. The ISLs for the following analytes were exceeded:

- Arsenic (BK)
- Barium (BK)
- Lead (BK)
- Zinc (BK)

These analytes were exceeded at one or more of the following locations:

- UA2-300B-1
- UA2-300B-2
- UA2-300B-3
- UA2-300B-4
- UA2-300B-5

The analytes most frequently detected exceeding the ISLs were arsenic and zinc, as shown in Table 3-13a and on Figures 3-6a through 3-6l. Exceedances are described as follows:

- Arsenic was detected exceeding its ISL (11 mg/kg) at 7 locations from depths between 0 foot and 6 feet bgs (Table 3-13a). The greatest arsenic concentration of 24 mg/kg was detected at sample location UA2-300B-1 at 0.5 foot to 1 foot bgs (Figure 3-6a).

- Zinc was detected exceeding its ISL (58 mg/kg) in 10 samples taken from depths between 0 foot and 6 feet bgs (Table 3-13a). The greatest zinc concentration of 65 mg/kg was detected at sample locations UA2-300B-3 at 2 feet to 3 feet bgs and UA2-300B-5 at 0.5 foot to 1 foot bgs (Figure 3-6l).

The lateral and vertical extents of the exceedances have generally been defined by samples with results less than ISLs, not detected exceeding reporting limits, or by geographical features. There are several locations that have detected metal results slightly greater than (2 times or less) their respective ISLs (typically, BK values). Apart from arsenic exceedances, these minor exceedances of the ISLs are less than the RBCs and do not present unacceptable risks to receptors.

Arsenic concentrations do not increase with depth except at UA2-300B-3, where results appear to slowly increase from 0 foot to 6 feet bgs. These exceedances are defined by the natural boundaries of UA-2:

- Dirt road to the north
- Bedrock at 5.5 feet bgs
- Bedrock outcropping to the east and south
- Steep slope to the west

The exceedances are not considered a data gap requiring further investigation. Additionally, as discussed in the RFI/RI Work Plan, Appendix A, Subappendix C9 (CH2M 2010):

> "*Although the site data set for arsenic appears to exceed background, the arsenic concentrations detected at UA 2 may represent a different background population from the sample population used to establish background comparison concentrations. UA 2 is located on bedrock, whereas the majority of the samples comprising the background data set were collected from alluvial material. The potential for the arsenic concentrations detected at this unit to represent background concentrations was evaluated statistically and visually via probability plots. The distribution of detected arsenic concentrations at UA 2 is consistent with a single population or background data set.*"
>
> *"Arsenic was detected in all 17 samples collected from UA 2, and seven of the detected concentrations exceed the [ISL (11 mg/kg)]. A probability plot was constructed for the arsenic data from UA 2 to evaluate the distribution of the data. Probability plots provide a visual tool for identifying possible inflections or breakpoints in the data set. They graph actual concentrations against theoretical quantiles of the potential true distribution of the data. Inflections or breakpoints may serve as evidence that multiple populations appear in the data, which could be consistent with the presence of some site-impacted concentrations along with some un-impacted (potential background) concentrations. The distribution of arsenic concentrations for UA 2 is a relatively smooth curve consistent with a true normal distribution of the data, as shown in Figure [4-13b]. There are no breakpoints or inflections suggestive of two separate populations of arsenic concentrations (i.e., a background concentrations and an elevated site-related concentration)."*

An outlier test was run in EPA ProUCL 5.1 on the UA-2 arsenic data set, and one result (24 mg/kg) was identified as an outlier at 1% significance.

As this assessment does not conclusively demonstrate that the detected arsenic concentrations at UA-2 are representative of a Site-specific background, a data gap for arsenic in bedrock is identified. Additional investigation of this bedrock data gap is not proposed at this time, as arsenic exceedances are less than the RBCs, and concentrations do not increase with depth or are defined by natural boundaries.

CLP Inorganics: Samples were collected in 2 samples at depths from 0 foot to 0.5 foot bgs (Table 3-13b). The ISL for manganese (BK) was exceeded at UA2-300B-1 and 5, from 0 foot to 0.5 foot bgs. The greatest manganese concentration of 840 mg/kg was detected exceeding the ISL of 402 mg/kg.

Because only two surface samples were collected for CLP inorganics, and manganese was exceeded in both, lateral and vertical extent of the exceedances of manganese has not been defined. Manganese is not considered a COPC or COPEC for this area, and the manganese concentrations at the Site are less than the RBC. Although the extent of manganese exceedances is not defined to the ISLs, the exceedances do not present an unacceptable risk to receptors. Therefore, the lateral extent of manganese is not considered a data gap that requires filling.

PAHs: Samples were collected at 6 locations at depths from 0 foot to 6 feet bgs. No samples had detected results that exceeded their respective ISLs (Table 3-13c).

VOCs and SVOCs: Samples were collected at 6 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-13d).

TPH: Samples were collected at up to 6 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-13e). The greatest TPH concentrations were detected at UA2-300B-1 at 2.5 feet and 3 feet bgs. The TPH concentrations decrease with depth at all sample locations with detected concentrations, and all TPH concentrations are more than 1 to 3 orders of magnitude less than RBRGs. Additionally, samples with the greatest TPH concentrations do not correspond to samples with the greatest metals (arsenic or zinc) concentrations.

General Chemistry: General chemistry parameters were not a COPC for this unit; therefore, samples were not analyzed for general chemistry parameters.

Pesticides: Samples were collected from 3 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-13f).

PCBs: Samples were collected from 6 locations, and no samples had detected results that exceeded their respective ISLs (Table 3-13g).

Dioxins and Furans: Dioxins and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans.

4.1.14.5 UA-2 Conceptual Site Model

Figure 4-13 is a graphical CSM developed for UA-2 based on Site history and background reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-17 presents the following information for UA-2:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part A DQOs TM (CH2M 2010), and is summarized in the following paragraphs, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary potential sources of contamination in UA-2 are historical spills while filling or emptying the tank and historical leaks from the tank. Constituents released would have been released in liquid form and released to surface soil.

Exhibit 4-17. Conceptual Site Model – UA 2
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental leaks or spills from former AST **COPCs include:** • TPH • PAHs	• Surface soil	• Percolation or infiltration	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[a]	**Human:** • Recreational user • Tribal user • Maintenance worker • Commercial worker **Ecological:** • Plants • Invertebrates • Birds • Mammals

[a] Enclosed space accumulation refers to any area where vapor can accumulate.

Low-level detections of TPH and, in some cases, PAHs, are consistent with releases from the 300B Pipeline Liquids Tank; however, these compounds did not exceed ISLs. The minor exceedances of arsenic, zinc, and manganese are likely representative of slightly elevated BK concentrations possibly due to the presence of bedrock in the UA-2 area.

Surface soil is the primary source medium at UA-2. Most the affected soil has been removed, as documented by post-remediation confirmation sampling CH2M 2013a). Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway; however, the threat to groundwater was ruled out for this unit. During extreme wet weather events, it is possible that some constituents may have been transported from the unit to the adjacent pipeline road in surface runoff. The analytical results for UA-2 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time.

COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At UA-2, this migration may result in COPCs at the top of the hillside migrating down the hillside and potentially onto the former Route 66.

4.1.14.6 Evaluation of Data Against Data Quality Objectives for UA-2

This section discusses the evaluation of data against DQOs for UA-2.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density, with the exception of manganese, which is not considered a COPC or COPEC. Tables 3-13a through 3-13g and on Figures 3-6a through 3-6p provide analytical results. Table 3-13h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 18 samples were collected from 5 locations ranging from 0 foot to 6 feet bgs for UA2-300B. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- Pesticides
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No data gaps were identified in the Soil RFI/RI Work Plan (CH2M 2013a).

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Data Sufficiency to Support CMS/FS): No samples from UA-2 were analyzed for soil characteristics during implementation of the RFI/RI Work Plan. Additional sampling to address this data gap is not recommended at this time.

Additional Considerations: A data gap for arsenic in bedrock is identified. Additional investigation of this bedrock data gap is not proposed at this time.

4.2 Part B Investigation

This section provides details about the Part B investigation.

4.2.1 SWMU 5 – Sludge Drying Beds

This section provides details about SWMU 5 – Sludge Drying Beds.

4.2.1.1 Setting

SWMU 5 is located in the southern portion of the lower yard near the western fence line. It comprises two former sludge drying beds that were adjacent to one another, as shown on Figure 2-2. Both of these beds were approximately 20 feet wide by 50 feet long. Both beds sloped longitudinally, with the upper end at grade level and the lower end about 2 feet bgs. The walls and floors of both beds were constructed of 8-inch-thick concrete. A drain line ran from the beds to the Transfer Sump (SWMU 9) to facilitate the removal of liquids (Mittelhauser 1990a).

4.2.1.2 Unit History

Sludge Drying Bed 1, constructed in the early 1950s, was used to dehydrate lime sludge generated by the water softening process (PG&E 1962, 1968). In historical aerial photographs from the mid-1950s (Photographs 4.1.1-1 and 4.1.1-2 in Section 4.1.1), the drying bed contains white material. A circular white area is also present just south of the sludge-drying beds (AOC 21). In addition, a similar white-colored area is present in those photographs at AOC 14 – the Railroad Debris site. Former employees reported that dehydrated lime sludge was trucked to AOC 14 and sprayed there (Russell, pers. comm. 2006b). A light area is also present in AOC 4 – Debris Ravine; however, the coloration in the Debris Ravine is much darker than that at the sludge-drying beds or Railroad Debris Site.

From 1964 through 1969, Bed 1 was used to treat chromium-bearing wastewater in the single-step chromate reduction process. Wastewater was allowed to flow through the bed and was injected with sulfur dioxide to reduce CrVI to CrIII before discharge. A second bed was constructed in the late 1960s; and from 1969 through 1985, the two drying beds were used to dehydrate chromic hydroxide sludge generated by the two-step wastewater treatment system (SWMUs 6 through 9) before disposal.

A 1970 letter (PG&E 1970d) indicates that PG&E was planning on burying the initial batch of sludge on or near the TCS; however, there is no information to suggest that this occurred (Russell pers. comm. 2006c). It appears that the chromium hydroxide sludge was disposed of at Needles Landfill from 1970 until 1983. Shipping documentation compiled by PG&E indicated that the amount of sludge disposed of each year was highly variable, and it appears that the sludge-drying beds had some storage capacity.

Disposal of the chromium sludge at Needles Landfill was discontinued by 1984. From January 1984 to May 1985, the dried sludge was transported offsite to an approved Class I hazardous waste facility (PG&E 1984b). Use of the sludge-drying beds ceased in 1985. Closure of the drying beds was accomplished during Phase I of the Hazardous Waste Treatment System Closure, between 1988 and 1989 (Mittelhauser 1990a).

4.2.1.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for SWMU 5 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at SWMU 5 comprises a layer of silty sand with gravel and cobbles from approximately 0 foot to 3 feet bgs, with approximately 60% silty sand and 40% cobbles. From 7.5 feet to 10 feet bgs, a unit of cobbles with gravel and sand was observed, with approximately 70% cobbles, 20% gravel, and 10% fine sand to silt. Lithology was recorded to a maximum depth of 10 feet bgs.

Debris observed in samples collected at SWMU 5 was at boring location SWMU5-2, with debris consisting of a 1-inch-diameter air line and wrapped pipe encountered at 4 feet bgs.

4.2.1.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-14a through 3-14i provide analytical results for SWMU 5, and Figures 3-10a through 3-10h show sampling locations and results. Screening level exceedances are summarized in this section.

Metals: Soil samples were collected from 6 locations at depths from 0 foot to 6 feet bgs. No samples exceeded the CSLs at SWMU 5. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The BK concentrations for CrT, lead, and zinc were exceeded at one or more of the following locations:

- EDB-4
- EDB-5
- WDB-4
- WDB-5

The most frequently detected analyte exceeding the BK value was lead. Lead was detected exceeding its BK value (8.39 mg/kg) in 2 samples between depths 0 foot to 3 feet bgs (Table 3-14a). The greatest lead concentration of 17 mg/kg was detected at sample location EDB-4 at 2.5 feet to 3 feet bgs. This sample was southeast of the former drying beds (Figure 3-10e).

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK or not detected exceeding reporting limits, except for samples EDB-5 and WDB-4, which had results for CrT and zinc, respectively, that were slightly greater than their BK values. These minor exceedances, with a FOE of 1.2 times the BK value for CrT and 1.7 times the BK value for zinc, are well less than CSLs and RBCs. Although the vertical extent of metals exceedances is not defined to BK, the exceedances do not present an unacceptable risk to receptors. Therefore, the vertical extent of metals is not considered a data gap that requires filling.

CLP Inorganics: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-14e).

PAHs: Samples were collected from 2 locations at depths from 0 foot to 10 feet bgs (Table 3-14c). PAHs were evaluated by calculating B(a)P equivalents for human health. The CSL (2,100 µg/kg) for B(a)P equivalent was exceeded at SWMU5-2 from 2 feet to 3 feet bgs with a concentration of 5,800 µg/kg, as shown in Table 3-14c. A sample from location SWMU5-2 was collected in the northern end of the western drying bed. There were no detections of carcinogenic PAHs (cPAHs); the 5,800-µg/kg result is because of elevated detection limits for the cPAHs and the calculated B(a)P equivalent.

The lateral extent of the exceedance has not been defined to BK within the unit boundaries; however, the lateral extent is defined within the TCS by samples less than CSLs or not detected exceeding BK, as is discussed in Section 4.2.10 for AOC 13 (Unpaved Areas within the TCS), which includes samples surrounding SWMU 5. This does not represent a data gap requiring further investigation. The vertical extent of the exceedances for all analytes has been defined by samples with results not detected exceeding BK levels.

TPH: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-14d).

General Chemistry: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-14e).

Pesticides: A single sample was collected and had no detected results that exceeded the respective CSLs (Table 3-14f).

PCBs: A single sample was collected and had no detected results that exceeded the respective CSLs (Table 3-14g).

Dioxins and Furans: Samples were collected from 1 location from 0 foot to 3 feet bgs and had no detected results that exceeded the respective CSLs (Table 3-14h).

4.2.1.5 SWMU 5 Conceptual Site Model

Due to their proximity to each other, a combined CSM has been developed for the following areas based on the Site history and BK reported for these units in the RFI/RI Work Plan (CH2M 2013a):

- SWMU 5
- SWMU 6
- SWMU 9
- Units 4.3, 4.4, and 4.5

Exhibit 4-18 presents the following information for these units:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

The primary sources of contamination in the region of these units are likely one of the following sources:

- Incidental releases of chromium-bearing cooling water from the sludge-drying beds or chromate reduction tank
- Incidental spills of water-softener sludge during transfer of material to or from the sludge drying beds
- Incidental releases of oily water from the oily water treatment system at Units 4.3, 4.4, and 4.5

The potential quantity of sludge, wastewater, or oily water released in the vicinity of these units is unknown but expected to be relatively small. The greatest chromium and zinc concentrations were detected at SWMU 6. The greatest lead concentrations were detected at SWMU 5. No detected metals had concentrations that exceeded their respective CSL. TPHs were detected at low levels at SWMU 5, SWMU 6, and Unit 4.3. Dioxins and furans exceeded the CSL at the 1 sample collected at depth (9 feet to 10 feet bgs) at SWMU 6. Elevated concentrations of dioxins and furans coincide with elevated concentrations of CrT and zinc. The source of dioxins and furans at this location is unknown.

The primary source media in the region of these units are surface and shallow soil. Because the area around these units was unpaved, spilled liquid or sludge would have been released directly to surface soil, and associated liquids could have infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils. Runoff of contaminated surface soil in rainwater is a potential migration pathway for soils located outside each structure. Surface runoff may have transported contaminants to Bat Cave Wash. Windblown dust contamination from small particles of contaminated surface soil is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils.

Exhibit 4-18. Conceptual Site Model – SWMU 5, SWMU 6, SWMU 9, and Units 4.3, 4.4, and 4.5
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental spills or releases of water-softener sludge, wastewater, or oily water **COPCs include:** • TPH • Dioxins and furans	• Surface soil • Shallow soil	• Percolation • Infiltration	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential entrainment in surface water runoff	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At the following units, this migration may result in COPCs in the lower yard migrating down the hillside into Bat Cave Wash and continuing down the flow path of Bat Cave Wash:

- SWMU 5
- SWMU 6
- SWMU 9
- Units 4.3, 4.4, and 4.5

4.2.1.6 Evaluation of Data Against Data Quality Objectives for SWMU 5

This section discusses the evaluation of data against DQOs for SWMU 5.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-14a through 3-14h and on Figures 3-10a through 3-10h provide analytical results. Table 3-14i provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 17 samples were collected from 8 locations ranging from 0 foot to 10 feet bgs for SWMU 5. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in SWMU 5 may pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of the following sources:

- Surface soil data
- Screening comparison values
- Potential transport mechanisms and pathways

Surface soils samples were collected in unpaved areas associated with SWMU 5 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results.

Results of shallow soil samples were screened against the relevant ISL for locations outside the compressor station fence line equal to one of the following requirements:

- EPA RRSL
- Residential DTSC-SL
- ECV
- BK

One or more samples exceeded the ISLs for the following equivalency factors:

- B(a)P equivalent exceeded the ISL (RRSL) of 110 µg/kg at 1 of 2 locations, with a maximum concentration of 500 µg/kg at SWMU5-2.
- TEQ avian exceeded the ISL (BK) of 16 ng/kg at 1 of 1 location (SWMU5-2) at a concentration of 25 ng/kg.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 1 of 1 location (SWMU5-2) at a concentration of 42 ng/kg.

Table 3-39j summarizes the greatest exceedances and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within SWMU 5 have the potential to migrate outside the fence line.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at SWMU 5. Potential migration of contamination at depth from SWMU 5 does not appear to be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and the nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from SWMU 5 were collected at SWMU5-1. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.2 SWMU 6 – Chromate Reduction Tank

This section provides details about SWMU 6 – Chromate Reduction Tank.

4.2.2.1 Setting

SWMU 6, the Chromate Reduction Tank, was located in the southern end of the lower yard, as shown on Figure 2-2. The tank had the following characteristics:

- Was constructed of steel
- Had an open top
- Was approximately 10 feet high and 5 feet in diameter
- Had a capacity of 1,500 gallons

The tank was partially set below grade within a pit that measured 10 feet wide by 10 feet long by 6 feet deep. The pit was supported on all four sides with wooden retaining walls; however, the bottom of the pit was not lined or paved (Kearny 1987).

4.2.2.2 Unit History

The Chromate Reduction Tank was part of the two-step wastewater treatment system installed in 1969. Cooling water blowdown containing chromium flowed by gravity from the cooling towers to the Chromate Reduction Tank from a 3-inch-diameter steel pipe. In the tank, wastewater was injected with sulfur dioxide, and CrVI was reduced to CrIII. Treated wastewater was then discharged by gravity flow through a 3-inch-diameter steel pipe into the transfer sump (SWMU 9).

The Chromate Reduction Tank was removed from service as part of the chromium treatment system in October 1985. However, starting in November 1985, the tank was reportedly used as a holding tank for an unspecified period of time (Kearny 1987). As a holding tank, it received treated effluent from the OWS (Unit 4.4) before discharge of the treated effluent to the evaporation ponds.

Closure of the chromium treatment system was completed during Phase I of the Hazardous Waste Treatment System Closure between 1988 and 1990. Physical removal of the Chromate Reduction Tank occurred during Phase 2 of the Hazardous Waste Management Facilities Closure process between November 1989 and March 1990 (Mittelhauser 1990a).

4.2.2.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for SWMU 6 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

One boring (SWMU6-1) was advanced to 10 feet bgs at SWMU 6. The soil comprised a layer of silty sand with cobbles and gravel from the surface to 3 feet bgs, with approximately 60% silty sand and 40% gravel and cobbles. From 3 feet to 10 feet bgs, the soil consisted of well-graded gravel with silt and sand, with other materials as follows:

- 50% gravel
- 20% cobbles
- 10 to 15% fine sand
- 20-25% silt

4.2.2.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-15a through 3-15i provide analytical results for SWMU 6, and Figures 3-10a through 3-10h show sampling locations and results. Screening level exceedances are summarized in this section.

Metals: Soil samples were collected from 2 locations at depths from 0 foot to 12.5 feet bgs. No samples exceeded the CSLs at SWMU 6. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. BK concentrations for CrVI and CrT were exceeded at one or more of the following locations: SWMU6-1 and CRT-4. The analytes most frequently detected exceeding the BK concentration are as follows:

- CrVI was detected exceeding its BK value (0.83 mg/kg) in 2 samples between depths 5 feet and 7.5 feet bgs (Table 3-15a). The greatest CrVI concentration of 1 mg/kg was detected at sample location CRT-4 at 7.5 feet bgs. A sample from location CRT-4 was collected east of the former Chromate Reduction Tank (Figure 3-10c).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 4 samples between depths 5 feet and 12.5 feet bgs (Table 3-15a). The greatest CrT concentration of 120 mg/kg was detected at sample location CRT-4 at 7.5 feet bgs. A sample from location CRT-4 was collected east of the former Chromate Reduction Tank (Figure 3-10d).
- Zinc was detected exceeding its BK value (58 mg/kg) in 2 samples between depths 7.5 feet to 12.5 feet bgs (Table 3-15a). The greatest zinc concentration of 96 mg/kg was detected at sample location CRT-4 at 7.5 feet bgs. A sample from location CRT-4 was collected east of the former Chromate Reduction Tank (Figure 3-10f).

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits except for CrT and CrVI. However, nearby sample BH-65 to 140 feet bgs defines vertical extent of CrVI and CrT to BK or ND.

CLP Inorganics: Samples were collected from 1 location, and no samples had detected results that exceeded their respective BK levels (Table 3-15b).

PAHs: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-15c).

TPH: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-15d).

General Chemistry: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-15e).

Pesticides: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-15f).

PCBs: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-15g).

Dioxins and Furans: One sample was collected at SWMU6-1 at a depth of 9 feet to 10 feet bgs (Table 3-15h). Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSLs for TEQ human (220 ng/kg) was exceeded with a concentration of 300 ng/kg, as shown in Table 3-15h. A sample from location SWMU6-1 was collected in the footprint of the former Chromate Reduction Tank (Figure 3-10h).

The lateral extent of the exceedance has not been defined within the unit boundaries; however, the lateral extent is defined within the TCS by samples less than CSLs or not detected exceeding BK. This does not represent a data gap requiring further investigation. The vertical extent of exceedances has not been defined by samples with results less than CSLs or not detected exceeding BK. However, as deeper samples (that is, greater than 10 feet bgs) would not be available to receptors, and nearby sample BH-65, collected from a depth that is available to receptors, is less than the CSL, the vertical extent data gap for dioxins and furans is not considered a data gap requiring further investigation.

4.2.2.5 SWMU 6 Conceptual Site Model

Due to their proximity to each other, a combined CSM has been developed for the following areas based on the Site history and BK reported for these units in the RFI/RI Work Plan (CH2M 2013a):

- SWMU 5
- SWMU 6
- SWMU 9
- Units 4.3, 4.4, and 4.5

The CSM for these units can be found in Section 4.2.1 (SWMU 5).

4.2.2.6 Evaluation of Data Against Data Quality Objectives for SWMU 6

This section discusses the evaluation of data against DQOs for SWMU 6.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-15a through 3-15h and on Figures 3-10a through 3-10h provide analytical results. Table 3-15i provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 8 samples were collected from 2 locations ranging from 0 foot to 12.5 feet bgs for SWMU 6. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in SWMU 6 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of the following sources:

- Surface soil data
- Screening comparison values
- Potential transport mechanisms and pathways

One surface soil sample was collected in unpaved areas associated with SWMU 6 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH

Tables 3-39a through 3-39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line equal to the following requirements:

- EPA RRSL
- Residential DTSC-SL
- ECV
- BK

No ISLs were exceeded.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at SWMU 6. Potential migration of contamination at depth from SWMU 6 does not appear to be a source of contamination to downgradient Part A investigation units.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IMs. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples collected at SWMU 5 (a nearby unit) will be used to support characterization of SWMU 6. Samples from SWMU 5 were collected at SWMU5-1. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.3 SWMU 8 – Process Pump Tank

This section provides details about SWMU 8 – Process Pump Tank.

4.2.3.1 Setting

SWMU 8 (Process Pump Tank) was located in the southern end of the lower yard in an area that is now covered by concrete and partially by the new Fire Pump Building. SWMU 8 was the Process Pump Tank that was part of the two-step wastewater treatment system. The Process Pump Tank consisted of a 1,500-gallon capacity steel holding tank about 8 feet high and 5.5 feet in diameter (PG&E 1982a; Kearny 1987). The tank had an open top and was situated on a concrete pad. The pump tank was used as a temporary holding tank for treated wastewater discharged from the Precipitation Tank (SWMU 7; Unit 4.9) before it was pumped to the former Percolation Bed (SWMU 1) or the former Evaporation Ponds (SWMU 10, closed). In 1985, this unit was removed from service; and closure was accomplished during Phase I of the Hazardous Waste Treatment System Closure, between 1988 and 1989.

4.2.3.2 Unit History

From May 1970 to December 1973, effluent from SWMU 8 was discharged primarily to injection well PGE-08 (SWMU 2); however, after Pond 1 (SWMU 10; Unit 4.11) was constructed in late 1971, it also received some of the discharged wastewater from SWMU 8. From December 1973 to October 1987, SWMU 8 effluent was discharged to the old Evaporation Ponds (SWMU 10; Unit 4.11) *(*CH2M 2007a).

Chemical analysis data for wastewater held within the Process Pump Tank are not available. No indication of a release was observed during a facility inspection performed as part of the RFI (Kearny 1987).

The Process Pump Tank was removed from service along with the rest of the treatment system in October 1985. Closure of the treatment system was completed between December 1988 and March 1990. Physical removal of the Process Pump Tank occurred during Phase 1 of the closure process between December 1988 and February 1989 (Mittelhauser 1990a). Steps taken in the closure process were:

- Hydroblasting of the steel tank; the hydroblast water was containerized and disposed of as hazardous waste.
- Removal of sludge from the tank, and disposal of the sludge as hazardous waste.
- Removal of the tank from its foundation; the tank was cut up and recycled.
- Removal of the concrete foundation; this concrete was combined with the concrete from the Precipitation Tank (for a total of about 30 yd^3), and it was disposed of as Class III waste.
- Collection of an initial round of confirmation samples. Initial confirmation samples were collected at 0.5 foot, 1 foot, and 1.5 feet below the Process Pump Tank. Concentrations of the following analytes exceeded the calculated BK standards established for the closure process (Mittelhauser 1990a), indicating residual contamination:
  - Cadmium (0.7 mg/kg)
  - Chromium (50 mg/kg)
  - Copper (23 mg/kg)
  - Lead (28-29, mg/kg)
- Soil removal after the initial confirmation samples indicated residual contamination (the volume of soil removed is estimated to be about 0.25 yd^3).
- Collection of final confirmation samples.
- Backfilling of the area with local material and final grading.

The results of the final confirmation samples indicated that the COPCs were at levels less than cleanup objectives (that is, established BK concentrations). In 1995, DTSC issued a closure certification acceptance letter for this unit (DTSC 1995).

4.2.3.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for SWMU 8 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

One boring (SWMU8-1) was advanced to 3 feet bgs at SWMU 8. The soil comprised a unit of silty sand with gravel, with approximately 60% silty sand and 40% gravel and cobbles. Caliche was encountered at 3 feet bgs.

4.2.3.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-16a through 3-16g provide analytical results for SWMU 8, and Figures 3-11a through 3-11b show sampling locations and results. Screening level exceedances are summarized in this section.

This following section provides a discussion about the following topics:

- Nature and extent of contamination

- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs.

Metals: Soil samples were collected from 2 locations at depths from 0 foot to 3 feet bgs. No samples exceeded the CSLs at SWMU 8. BK concentrations for the following analytes were exceeded at one or two of the sampling locations:

- CrT
- Cobalt
- Copper
- Nickel
- Vanadium

The analytes most frequently detected exceeding the BK levels were copper and nickel:

- Copper was detected exceeding its BK value (16.8 mg/kg) in 3 samples between depths 0 foot and 3 feet bgs (Table 3-16a). The greatest copper concentration of 21 mg/kg was detected at sample location SWMU8-1 at the surface to 1 foot bgs. A sample from location SWMU8-1 was collected in the footprint of the former Process Pump Tank (Figure 3-11b).
- Nickel was detected exceeding its BK value (27.3 mg/kg) in 3 samples between depths 0 foot and 3 feet bgs (Table 3-16a). The greatest nickel concentration of 40 mg/kg was detected at sample location SWMU8-1 at 2 feet to 3 feet bgs. A sample from location SWMU8-1 was collected in the footprint of the former Process Pump Tank.

The lateral and vertical extents of the exceedances have been defined for most metals by samples with results less than BK values or not detected exceeding reporting limits. However, several metals at both locations had detected results slightly greater than (less than 2 times) their respective BK values at several locations. Metals concentrations are generally decreasing or consistent with depth, and results are less than CSLs or RBCs and do not present an unacceptable risk to receptors. These minor exceedances of the BK values for the other metals are not considered a data gap requiring further investigation.

CLP Inorganics: Samples were collected from 1 location at depths from 0 foot to 3 feet bgs. The BK values for aluminum and magnesium were exceeded at SWMU8-1.

Aluminum and magnesium were detected just greater than their respective BK values (16,400 mg/kg and 12,100 mg/kg, respectively) at SWMU8-1 from depths 0 foot to 3 feet bgs (Table 3-16b). The greatest aluminum concentration was 18,000 mg/kg, and magnesium was 15,000 mg/kg; both were detected at sample location SWMU8-1 at 2 feet to 3 feet bgs. A sample from location SWMU8-1 was collected in the footprint of the former Process Pump Tank.

There are no CLP inorganic exceedances at nearby units AOC 8, AOC 18, and AOC 23. Additionally, CLP inorganics are not compounds driving risk; therefore, the minor exceedances of BK values of CLP inorganics at SWMU 8 are not considered a data gap requiring further investigation.

PAHs: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-16c).

TPH: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-16d).

General Chemistry: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-16e).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: PCBs were not a COPC for this unit; therefore, samples were not analyzed for PCBs.

Dioxins and Furans: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-16f).

4.2.3.5 SWMU 8 Conceptual Site Model

A CSM has not been developed for SWMU 8. SWMU 8 was removed and issued a closure certification by DTSC in 1995. Confirmation samples and RFI/RI soil samples confirmed detected metals are at concentrations just exceeding BK. Further, the footprint of the former unit is covered by concrete and a building.

4.2.3.6 Evaluation of Data Against Data Quality Objectives for SWMU 8

This section discusses the evaluation of data against DQOs for SWMU 8.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-16a through 3-16f and Figures 3-11a through 3-11b provide analytical results. Table 3-16g provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 4 samples were collected from 2 locations ranging from 0 foot to 3 feet bgs for SWMU 8. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in SWMU 8 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as the former unit is covered with concrete and a building, preventing surface soil migration. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IMs. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples were collected at AOC 23 (a nearby unit), in part, to support characterization of SWMU 8. One sample from AOC 23 was collected at AOC23-2, but the volume of the sample was insufficient to run the ordered analyses. Results from other samples collected at nearby units will be used to support characterization of SWMU 8. These samples were collected at the following areas:

- AOC5-2
- AOC7-1
- AOC8-1

Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.4 SWMU 9 – Transfer Sump

This section provides details about SWMU 9 – Transfer Sump.

4.2.4.1 Setting

SWMU 9 was the Transfer Sump that was part of a two-step wastewater treatment system located in the southwestern portion of the lower yard, adjacent to SWMU 5 and SWMU 6, as shown on Figure 2-2. The Transfer Sump was a prefabricated concrete septic tank that was 3 feet in diameter, 20 feet deep, and had a capacity of 1,500 gallons. The sump was also fitted with a concrete cover (CH2M 2007a).

4.2.4.2 Unit History

From 1969 through 1985, effluent from the Chromate Reduction Tank was routed through SWMU 9 to the Precipitation Tank (SWMU 7). Sometime around 1974, the Transfer Sump also started to receive treated effluent water from the OWS (either directly or through the Chromate Reduction Tank) (Kearny 1987).

From 1985 to 1989, the Transfer Sump received nonhazardous (that is, phosphate-based) cooling water blowdown, and the effluent from the Transfer Sump was discharged directly to the old Evaporation Ponds (SWMU 10). Oily sludges and solids that accumulated in the Transfer Sump were periodically removed and transported to an offsite disposal facility (Kearny 1987).

The Transfer Sump was removed from service in October 1989. Physical removal of the Transfer Sump occurred during Phase 2 of the Hazardous Waste Management Facilities Closure process between November 1989 and March 1990 (Mittelhauser 1990a). A closure certification acceptance letter was issued by DTSC on June 26, 1995 (DTSC1995). The steps taken during closure of the Transfer Sump included:

- Removal of the surface soil around the maintenance hole of the sump that was visibly stained with oil; approximately 2 ft^3 of stained soil was removed and disposed of as hazardous waste.
- Removal of sludge and water in the sump, followed by hydroblasting of the concrete sump; the sludge and hydroblast water were containerized and disposed of as a hazardous waste.
- Demolition of the sump in place; the concrete rubble was found to be nonhazardous and was used as fill onsite.
- Collection of confirmation samples.
- Backfilling of the pit with local material and final grading.

4.2.4.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. No borings were advanced at SWMU 9. The lithologic descriptions for SWMU 5 in Section 4.2.1.3 and for SWMU 6 in Section 4.2.1.4 also provide descriptions of soil in adjacent areas.

4.2.4.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-17a through 3-17c provide analytical results for SWMU 9. Figures were not developed for SWMU 9, as there were no exceedances. Screening level exceedances are summarized in this section.

Metals: One sample was collected from underneath the former sump location at 19 feet bgs, and no detected results exceeded their respective CSLs or BK levels (Table 3-17a).

CLP Inorganics: CLP inorganics were not a COPC for this unit; therefore, samples were not analyzed for CLP inorganics.

PAHs: PAHs were not a COPC for this unit; therefore, samples were not analyzed for PAHs.

TPH: TPH was not a COPC for this unit; therefore, samples were not analyzed for TPH.

General Chemistry: One sample was collected from underneath the former sump location at 19 feet bgs, as shown in Table 3-17b. No CSLs were exceeded (BK values are not established) (Table 3-17b).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: PCBs were not a COPC for this unit; therefore, samples were not analyzed for PCBs.

Dioxins and Furans: Dioxins and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans.

4.2.4.5 SWMU 9 Conceptual Site Model

Due to their proximity to each other, a combined CSM has been developed for the following areas based on the Site history and BK reported for these units in the RFI/RI Work Plan (CH2M 2013a):

- SWMU 5
- SWMU 6
- SWMU 9
- Units 4.3, 4.4, and 4

Section 4.2.1 provides the CSM for these units (SWMU 5).

4.2.4.6 Evaluation of Data Against Data Quality Objectives for SWMU 9

This section discusses the evaluation of data against DQOs for SWMU 9.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results. Tables 3-17a and 3-17b provide analytical results and Table 3-17c provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 2 data were used to delineate the nature and extent of contamination. One sample was collected from 1 location at 19 feet bgs for SWMU 9. The sample was analyzed for metals.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. The entire area within the TCS is one exposure unit for the risk assessment; therefore, the combined data set for all units within the fence line were used to support EPC development.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Surface soil samples (0 foot to 1 foot bgs) were not collected at SWMU 9 because this was an underground tank. Therefore, offsite migration within SWMU 9 is not evaluated.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples collected at SWMU 5 (a nearby unit) were used to support characterization of SWMU 9. Samples from SWMU 5 were collected at SWMU5-1. Results are presented in Table 3-38. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.5 SWMU 11 – Former Sulfuric Acid Tanks

This section provides details about SWMU 11 – Former Sulfuric Acid Tanks.

4.2.5.1 Setting

SWMU 11 consists of the former locations of two 2,600-gallon sulfuric acid tanks located at Cooling Towers A (AOC 5) and B (AOC 6), referred to as SWMU 11S and SWMU 11N, respectively. SWMU 11S and SWMU 11N are each divided into two subunits, as shown on Figure 2-2: the former location of the tanks (the southern polygons at SWMU 11S and SWMU 11N) and the current tank locations (the northern polygons).

4.2.5.2 Unit History

Sulfuric acid is and was used at the TCS to control pH and minimize scaling in the cooling towers. The composition of the cooling water must be carefully maintained at optimal conditions to minimize potential for scale, corrosion, and biological growth. As needed, an automatic controller adds sulfuric acid and other chemicals to maintain the proper conditions of the cooling water.

Before 1958, sulfuric acid was delivered to the TCS in drums and pumped directly into the cooling tower basins. The active sulfuric acid feed drums were located in the acid houses (also known as chemical storage sheds) located at Cooling Towers A and B. The original tanks were unlined steel ASTs with a capacity of 2,600 gallons each and were installed in 1958 as part of an overall effort to improve the chemical addition process for the cooling towers. Because the tanks were unlined, sulfuric acid sludge was generated and required periodic removal (PG&E 1972, 1982a).

The steel tanks were replaced with new epoxy-lined tanks between 1982 and 1984 (PG&E 1982b, 1984a). Secondary containment was provided for the sulfuric acid tanks in 1988 (PG&E 1988). The steel tanks were replaced with polyethylene-lined 400-gallon tanks in 2006. Until early 2012, these tanks were located within the original epoxy-coated concrete containment structures. In 2012, the chemical feed facilities were relocated again (CH2M 2014a).

4.2.5.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. General lithologic descriptions for SWMU 11N and SWMU 11S are provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

Two borings (SWMU11-4 and SWMU11-5) were advanced to 3 feet bgs at SWMU 11N. The soil comprised a unit of silty sand with gravel at boring location SWMU11-4 and sand with gravel at SWMU11-5. At SWMU11-5, plastic debris was encountered between 2.5 feet and 3 feet bgs.

Three borings (SWMU11-1, SWMU11-2, and SWMU11-3) were advanced at SWMU 11S. Borings SWMU11-1 and SWMU11-2 were advanced to 3 feet bgs and comprised sand with gravel, with some silt noted in the upper 0.5 foot bgs at SWMU11-2. Boring SWMU11-3 was advanced to 7 feet bgs and comprised poorly graded sand with gravel from 0 foot to 3 feet bgs and poorly graded sand, with 10% gravel, 10% cobbles, and 80% sand from 3 feet to 7 feet bgs.

4.2.5.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-18a through 3-18h provide analytical results for SWMU 11, and Figures 3-12a through 3-12i (SWMU 11S) and Figures 3-13a through 3-13j (SWMU 11N) show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.5.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 5 locations at depths from 0 foot to 10 feet bgs. No samples exceeded the CSLs at SWMU 11. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. BK concentrations for the following analytes were exceeded:

- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Zinc

These analytes exceeded at one or more of the following locations (Table 3-18a):

- SWMU11-1
- SWMU11-2
- SWMU11-3
- SWMU11-4
- SWMU11-5

The analytes that most frequently exceeded the BK levels were as follows:

- CrVI was detected exceeding its BK value (0.83 mg/kg) in 9 samples between depths 0 foot and 6 feet bgs (Table 3-18a). The greatest CrVI concentration of 5.4 mg/kg was detected at sample location SWMU11-3 at 2 feet to 3 feet bgs. A sample from location SWM11-3 was collected within AOC 5, south of the former sulfuric acid tank at SWMU 11S (Figure 3-12b).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 6 samples between depths 0 foot and 3 feet bgs (Table 3-18a). The greatest CrT concentration of 87 mg/kg was detected at sample location SWMU11-3 at 2 feet to 3 feet bgs. A sample from location SWM11-3 was collected within AOC 5, south of the former sulfuric acid tank at SWMU 11S (Figure 3-12c).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 5 samples between depths 0 foot and 3 feet bgs (Table 3-18a). The greatest copper concentration of 58 mg/kg was detected at sample

location SWMU11-1 at the surface to 0.5 foot bgs. A sample from location SWM11-1 was collected within AOC 5, south of the former sulfuric acid tank at SWMU 11S (Figure 3-12d).

- Lead was detected exceeding its BK value (8.39 mg/kg) in 7 samples between depths 0 foot and 3 feet bgs (Table 3-18a). The greatest lead concentration of 59 mg/kg was detected at sample location SWMU11-3 at the surface to 0.5 foot bgs. A sample from location SWM11-3 was collected within AOC 5, south of the former sulfuric acid tank at SWMU 11S (Figure 3-12e).
- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 5 samples between depths 0 foot and 3 feet bgs (Table 3-18a). The greatest molybdenum concentration of 4.8 mg/kg was detected at sample location SWMU11-5 at 2 feet to 3 feet bgs. A sample from location SWM11-5 was collected within the footprint of the southern former sulfuric acid tank at SWMU 11N (Figure 3-13f).
- Zinc was detected exceeding its BK value (58 mg/kg) in 5 samples between depths 0 foot and 3 feet bgs (Table 3-18a). The greatest zinc concentration of 170 mg/kg was detected at sample location SWMU11-1 at the surface to 0.5 foot bgs. A sample from location SWM11-1 was collected within AOC 5, south of the former sulfuric acid tank at SWMU 11S (Figure 3-12g).

The lateral extent of the exceedances has been defined by samples with results less than BK values or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results not detected exceeding reporting limits or detected results less than CSLs and BK values.

The deepest sample at SWMU11-2 had results that slightly exceed the BK values for CrVI and CrT, with a maximum FOE of 2 times the BK value. The deepest sample at SWMU11-5 had results that slightly exceeded BK values for the following analytes, with a maximum FOE of 3.5 times the BK value:

- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Zinc

These minor exceedances of BK values are less than CSLs and RBCs, do not present unacceptable risks to receptors, and are not considered a data gap that requires filling.

CLP Inorganics: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-18b).

PAHs: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-18c).

TPH: TPH was not a COPC for this unit; therefore, samples were not analyzed for TPH.

General Chemistry: Samples were collected from 5 locations and were only analyzed for pH, which has no CSL or BK concentration (Table 3-18d).

Pesticides: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-18e).

PCBs: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-18f).

Dioxins and Furans: Samples were collected from 2 locations at depths from 0 foot to 10 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSL for TEQ human (220 ng/kg) was exceeded at SWMU11-1 and SWMU11-3, as shown in Table 3-18g.

TEQ human was detected exceeding its CSL in 2 samples between depths 0 foot and 3 feet bgs (Table 3-18g). The greatest TEQ human concentration of 830 ng/kg was detected at sample location

SWMU11-3 at 2 feet to 3 feet bgs. A sample from location SWM11-3 was collected within AOC 5, south of the former sulfuric acid tank (Figure 3-12i).

The lateral extent of the exceedance has not been defined within the unit boundaries; however, the lateral extent is defined within the TCS by samples less than CSLs or not detected exceeding reporting limits. This does not represent a data gap requiring further investigation. The vertical extent of exceedances has been defined by samples with results less than CSLs at all locations.

4.2.5.5 SWMU 11 Conceptual Site Model

Figure 4-14 is a graphical CSM developed for SMWU 11 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-19 presents the following information for SWMU 11:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b), and discussed in this section, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at SWMU 11N and SWMU 11S are likely to be historical incidental spills of chromium and molybdenum bearing cooling water. The quantity of liquid released in the area is unknown. If a large spill occurred, it could have resulted in cooling water reaching the storm drain system. The greatest contaminant concentrations are found at SWMU11-3, located south of the former sulfuric acid tank at SWMU 11S.

It is possible that historical incidental spills of sulfuric acid occurred during transfer; however, pH measurements in soil samples do not reflect presence of acidic conditions. The quantity of acid released, if any, is unknown but is expected to be relatively small, as any spills or incidental leaks would have quickly been addressed due to the inherent hazards of the acid. Early chemical handling procedures at TCS indicated that baking soda was maintained at the station to neutralize sulfuric acid spills (PG&E 1953). If a large release from the tank occurred, it could have resulted in acid reaching the storm drain system.

At SWMU 11S and adjacent AOC 5, elevated concentrations of dioxins and furans coincide with elevated concentrations of CrVI, CrT, and molybdenum. Dioxins and furans were not analyzed in SWMU 11N samples; however, some samples at adjacent AOC 6 have a similar trend. The sources of dioxins and furans at these locations is unknown.

The primary source medium at SMWU 11 is surface soil. Because most of the area around the former tank locations is covered with gravel, liquids released in SMWU 11 would have been released to surface soil and would have infiltrated to shallow soil. Acid released to soils could have solubilized metals in the soil matrix. Liquids released to shallow soils and metals solubilized from surface and shallow soils could also have infiltrated to deeper soils. Because the entire SWMU is covered with gravel or pavement, runoff of contaminated surface soil in rainwater is not considered a potential migration pathway. Windblown dust contamination from small particles of contaminated surface soil around SWMU 11N and SWMU 11S is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils.

Exhibit 4-19. Conceptual Site Model – SWMU 11
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PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Potential incidental spills and releases from sulfuric acid tanks **COPCs include:** • Metals • Dioxins and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker

4.2.5.6 Evaluation of Data Against Data Quality Objectives for SWMU 11

This section discusses the evaluation of data against DQOs for SWMU 11.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-18a through 3-18g provide analytical results. Table 3-18h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, up to 12 samples were collected from 5 locations ranging from 0 foot to 10 feet bgs for SWMU 11. The samples were analyzed for one or more of the following analyte categories:

- Metals
- CLP inorganics
- PAHs
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in SWMU 11 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are covered with gravel, paved, or otherwise covered with an impermeable surface, preventing surface soil migration. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from SWMU 11 were collected at SWMU 11-4. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.6 AOC 5 – Cooling Tower A

This section provides details about AOC 5 – Cooling Tower A.

4.2.6.1 Setting

AOC 5 includes the area below and surrounding the original southern Cooling Tower A, as shown on Figure 2-2. The new Cooling Tower A is in the same location as the original Cooling Tower A. AOC 5 encompasses the following areas:

- Site of the cooling tower

- Site of the former chemical shed
- Site of the sulfuric acid tank (SWMU 11S)
- Site of the current cooling water treatment product tanks

Most of the area surrounding the cooling tower is unpaved but covered with gravel. The AOC 5 boundary is bounded on all sides by pavement.

4.2.6.2 Unit History

Operations at AOC 5 consist of the storage, handling, and use of cooling water additives. From 1951 to 1985, chromium-based corrosion inhibitors were used to treat the cooling water. From 1985 to the present time, nonhazardous, phosphate-based inhibitors, scale control agents, and biocides have been used. Sulfuric acid has been used from 1951 to the present time to control the pH of the cooling water (CH2M 2007a). The major features located in AOC 5 are discussed in this section.

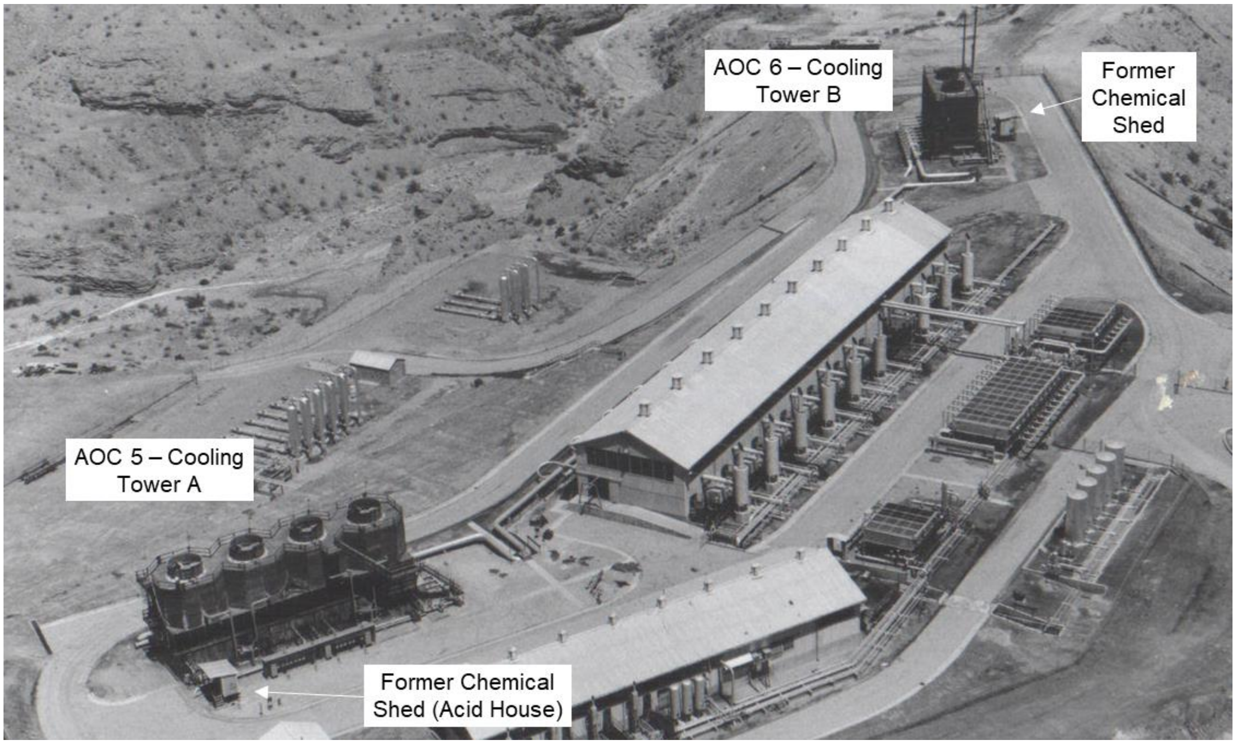
Original Cooling Tower A: The original Cooling Tower A was a coil shed tower constructed along with the rest of the TCS in 1951 CH2M 2007a). The original tower was replaced with a new tower in 2001. The cooling tower is used to cool compressed natural gas and lubricating oil cooling water. The original tower was located within a concrete water basin that held heated cooling water (the hot water basin). The basin is no longer used for collecting cooling water. Limited soil sampling conducted in 1999 in the unpaved areas in the vicinity of the cooling tower indicated that the following analytes were present at concentrations exceeding BK:

- CrT
- CrVI
- Zinc
- Copper

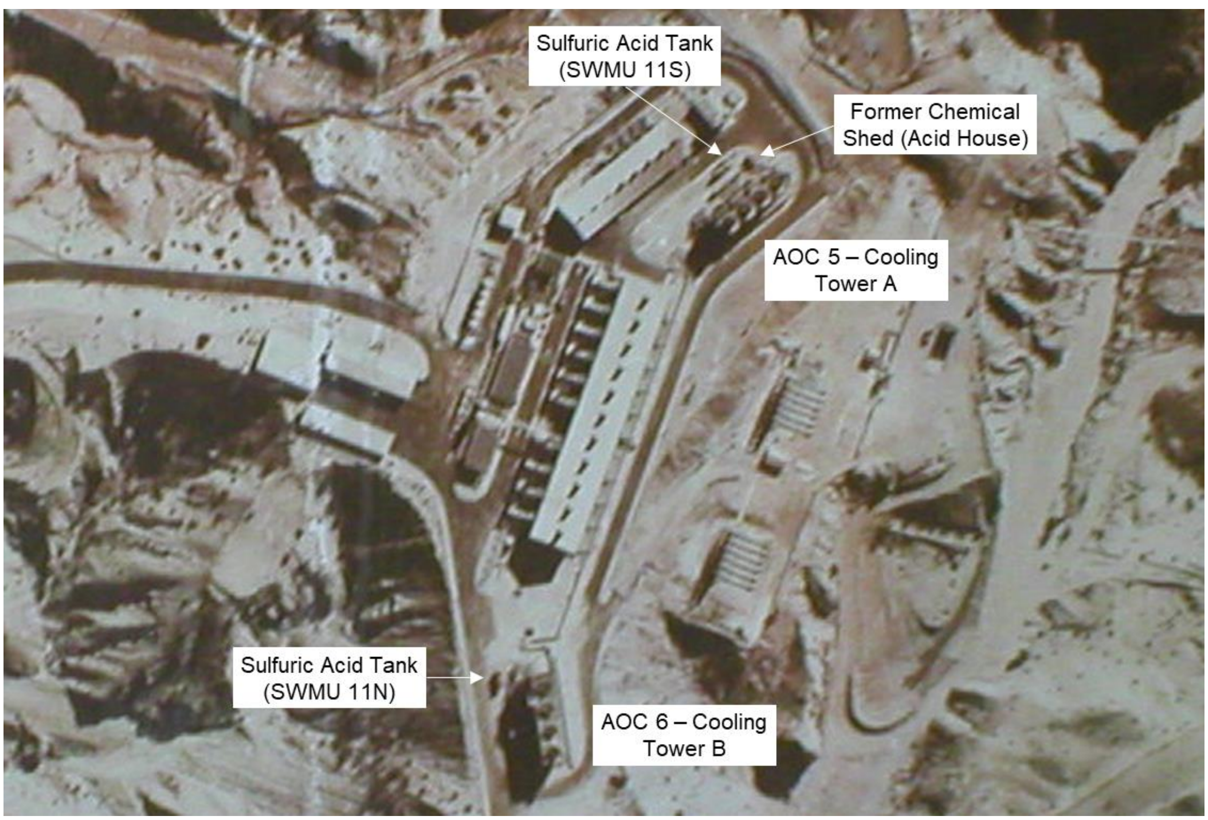
Former Chemical Shed (Acid House): The former chemical shed was located about 15 feet east of Cooling Tower A (Photographs 4.2.6-1 and 4.2.6-2). The shed was used to store chromium-based cooling water additives used in the cooling tower from 1951 to 1985, as well as sulfuric acid before the installation of the sulfuric acid tanks (SWMU 11). The shed was demolished in the summer of 2000 as part of the replacement of Cooling Tower A. Stained soils beneath the former chemical storage shed were observed after its demolition (PG&E 2000b). The stained soils were reportedly limited to a small area of about 4 feet by 4 feet. Stained soil was excavated and disposed of offsite. Confirmation soil samples were not collected; it is unknown what contaminants were associated with the stained soil. After removal, the area was backfilled with clean fill. As part of the new cooling tower construction, a reinforced-concrete pad was built adjacent to the removal area, and a small portion of the area is covered with this pad.

Sulfuric Acid Tank (SWMU 11s): Sulfuric acid is used at this site to control the pH of the cooling water in Cooling Tower A (Photograph 4.2.6-2). The original tank was an unlined steel AST with a capacity of 2,600 gallons. The tank was located within a concrete secondary containment area. In 1984, the original tank was replaced with a new epoxy-lined AST of the same size and capacity (PG&E 1984a). Section 4.2.5 discusses the sulfuric acid tank.

Chemical Storage Tanks: There are currently three ASTs at AOC 5 that are used for the storage of phosphate-based cooling water treatment products. These tanks were located at the southern end of the cooling tower until 2012 and are now located in newly constructed secondary containment on the eastern side of AOC 5. The tanks are constructed of polyethylene and have secondary containment. Currently, there are six additives, including sulfuric acid, that are used to manage corrosion and microbiological activity in the cooling towers.



Photograph 4.2.6-1: May 19, 1955, Aerial Photograph 2 (cropped), Cooling Towers and Associated Structures. Note: Facing northwest.



Photograph 4.2.6-2: June 1, 1967, Aerial Photograph (cropped), Cooling Towers and Associated Structures. Note: Top of image is to the south.

4.2.6.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 5 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 5 comprises a unit of sand with gravel to silty sand with gravel, with approximately 70% silty sand and up to 30% gravel to cobbles. Lithology was recorded to a maximum depth of 10 feet bgs.

Descriptions of staining and debris observed in samples collected at AOC 5, and associated contamination, are as follows:

- At boring location AOC5-2, a 0.25-inch-thick white layer was encountered between 0 foot and 1 feet bgs. CrVI exceeded the CSL in a sample collected at 0.5 foot bgs.
- At boring AOC5-5, metal debris was encountered at the surface between 0 foot and 0.5 foot bgs. The following analytes exceeded the CSL in the sample collected from 0 foot to 0.5 foot bgs:
  - CrVI
  - Total PCBs
  - Dioxins and furans TEQ human

4.2.6.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-19a through 3-19i provide analytical results for AOC 5, and Figures 3-12a through 3-12i show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.6.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Nature and extent is discussed based on the available data; however, the decision for DQO 1 is deferred until the entire unit becomes available for sampling.

Metals: Soil samples were collected from 13 locations within AOC 5, from 0 foot to 10 feet bgs. The CSLs were exceeded for CrVI at the following locations:

- AOC5-2
- AOC5-4
- AOC5-5
- AOC5-OS2
- AOC5-4
- PS-13
- PS-15

BK values were also exceeded for the following analytes:

- Cadmium
- CrVI
- CrT
- Copper
- Lead
- Molybdenum

- Nickel
- Zinc

These analytes exceeded at one or more of the following locations (Table 3-19a):

- AOC5-1
- AOC5-2
- AOC5-3
- AOC5-4
- AOC5-5
- AOC56
- AOC5-OS2
- AOC5-OS3
- AOC5-OS4
- PS-13
- PS-14
- PS-15
- PS-16

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The most frequently detected analytes exceeding BK levels were as follows:

- CrVI was detected exceeding its BK value (0.83 mg/kg) in 25 samples and was detected exceeding the CSL (6.3 mg/kg) in 8 samples between depths 0 foot and 10 feet bgs (Table 3-19a). The greatest CrVI concentration of 24 mg/kg was detected at sample location AOC5-OS4 at the surface to 0.5 foot bgs. A sample from location AOC5-OS4 was collected on the western side of the cooling tower (Figure 3-12b).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 18 samples between depths 0 foot and 10 feet bgs (Table 3-19a). The greatest CrT concentration of 730 mg/kg was detected at sample location AOC5-4 at the surface to 0.5 foot bgs. A sample from location AOC5-4 was collected on the western side of the cooling tower (Figure 3-12c).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 15 samples between depths 0 foot and 5 feet bgs (Table 3-19a). The greatest copper concentration of 530 mg/kg was detected at sample location AOC5-4 at the surface to 0.5 foot bgs. A sample from location AOC5-4 was collected on the western side of the cooling tower (Figure 3-12d).
- Lead was detected exceeding its BK value (8.39 mg/kg) in 16 samples between depths 0 foot and 5 feet bgs (Table 3-19a). The greatest lead concentration of 220 mg/kg was detected at sample location AOC5-OS4 at the surface to 0.5 foot bgs. A sample from location AOC5-OS4 was collected on the western side of the cooling tower (Figure 3-12e).
- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 15 samples between depths 0 foot and 5 feet bgs (Table 3-19a). The greatest molybdenum concentration of 23 mg/kg was detected at sample location AOC5-5 at the surface to 0.5 foot bgs. A sample from location AOC5-5 was collected northwest of the cooling tower (Figure 3-12f).
- Zinc was detected exceeding its BK value (58 mg/kg) in 21 samples between depths 0 foot and 5 feet bgs. The greatest zinc concentration of 1,900 mg/kg was detected at sample location AOC5-4 at the surface to 0.5 foot bgs (Table 3-19a). A sample from location AOC5-4 was collected on the western side of the cooling tower (Figure 3-12g).

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has generally been defined by samples with results not detected exceeding reporting limits or detected results less than CSLs and BK values, or by collocated samples.

Sample locations AOC5-2, AOC5-4, and AOC5-6 had CrVI results that exceeded the BK value in the deepest sample. These exceedances were minor, with FOEs ranging from 1.93 to 2.29 times BK values; they also show decreasing concentrations with depth, and are less than the CSL. Therefore, these minor exceedances are not considered a data gap.

In addition, metals results for the deepest samples at PS-13 (zinc), AOC5-1 (molybdenum), and AOC5-2 (lead) slightly exceeded BK values (with FOEs ranging from 1.2 to 2.7 times BK values). These minor exceedances are less than CSL and RBCs, do not present unacceptable risks to receptors, and are not considered a data gap that requires filling.

Four additional samples were collected as part of groundwater remedy implantation (TCS-OPP-AOC05-001 through TCS-OPP-AOC05-004). There was one exceedance of the BK concentration for copper at TCS-OPP-AOC05-003. No CSLs were exceeded.

CLP Inorganics: Samples were collected from 3 locations from 0 foot to 5.5 feet bgs (Table 3-19b). No samples had detected results that exceeded their respective CSLs or BK values.

PAHs: Samples were collected from 2 locations from 0 foot to 6 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health. The BK value for B(a)P equivalent was exceeded at locations AOC5-4 and AOC5-5. The CSL for B(a)P equivalent was exceeded at location AOC5-4.

B(a)P equivalent was detected exceeding its CSL (2,100 µg/kg) at AOC5-4 between depths 0 foot and 0.5 foot bgs (Table 3-19c). The greatest B(a)P equivalent concentration of 2,900 µg/kg was detected at sample location AOC5-4 at the surface to 0.5 foot bgs. A sample from location AOC5-4 was collected on the western side of the cooling tower (Figure 3-12h).

The lateral and vertical extents of the exceedances for all analytes have not been defined by samples with results less than the CSL. Additional sampling around AOC 5 would be difficult as the unit is active. Therefore, the determination of nature and extent is deferred until the entire unit becomes available for sampling.

Four additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC05-001 through TCS-OPP-AOC05-004). There were no exceedances of BK or CSLs.

TPH: TPH was not a COPC for this unit; therefore, samples were not analyzed for TPH.

VOCs and SVOCs: A single sample was collected for VOCs and SVOCs at AOC5-4 at 5 feet to 5.5 feet bgs, and no results exceeded their respective CSLs (Table 3-19d).

General Chemistry: Samples were collected from 10 locations from 0 foot to 10 feet bgs (Table 3-19e). ISLs were not established for general chemistry parameters.

Pesticides: A single sample was collected for pesticides at AOC5-4 at 5 feet to 5.5 feet bgs, and no results exceed their respective CSLs (Table 3-19f).

PCBs: Samples were collected at 5 locations for PCBs at depths ranging from 0 foot to 10 feet bgs (Table 3-19g). The CSLs (970 µg/kg) for Aroclor 1254 were exceeded at AOC5-5 and AOC5-6, as shown in Table 3-19g. The greatest Aroclor 1254 concentration of 1,700 µg/kg was detected at sample location AOC5-5 at the surface to 0.5 foot bgs. A sample from location AOC5-5 was collected northwest of the cooling tower.

The lateral extent of exceedances has not been defined by samples less than CSLs at the northern side of the unit (AOC5-5). The vertical extent of exceedances has been defined by samples with results less than CSLs, except AOC5-6, where Aroclor 1254 exceeded the CSL at the deepest sample depth of 2 feet to 3 feet bgs. Deeper samples could not be collected at AOC5-6. Additional sampling around AOC 5 would be difficult, as the unit is active. Therefore, the determination of nature and extent is deferred until the entire unit becomes available for sampling.

Four additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC05-001 through TCS-OPP-AOC05-004). There were no PCB detections.

Dioxins and Furans: Samples were collected at 5 locations from 0 foot to 10 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSLs for TEQ human (220 ng/kg) were exceeded at locations AOC5-2, AOC5-4, and AOC5-5, as shown in Table 3-19h:

TEQ human was detected exceeding the CSL at 4 samples between depths 0 foot and 2 feet bgs (Table 3-19h). The greatest TEQ human concentration of 2,000 ng/kg was detected at sample location AOC5-4 at the surface to 0.5 foot bgs. A sample from location AOC5-4 was collected adjacent to the western side of the cooling tower (Figure 3-12i).

The lateral extent of the exceedance has not been defined within the unit boundaries; however, the lateral extent is defined within the TCS by samples less than CSLs or not detected exceeding reporting limits. This does not represent a data gap requiring further investigation. The vertical extent of exceedances has been defined by samples with results less than the CSL.

Four additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC05-001 through TCS-OPP-AOC05-004). TEQ human concentrations were not calculated.

4.2.6.5 AOC 5 Conceptual Site Model

Figure 4-15 is a graphical CSM developed for AOC 5 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-20 presents the following information for AOC 5:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b), and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 5 are as follows:

- Potential historical liquid discharges (spills) from the cooling tower hot water basin (while the old cooling tower was in operation)
- Potential historical liquid discharges (spills) from the lubricating oil cooling system hot water basin
- Potentially incidental spills of cooling system additives during storage or transfer of the additive chemicals
- Potential releases of PCBs (Aroclor 1254) from electrical transformers

Dioxin and furan and PAH contamination at AOC 5 may be related to industrial activities, such as fire suppression or vehicle exhaust. Additionally, at AOC 5 and adjacent SWMU 11S, elevated concentrations of dioxins and furans coincide with elevated concentrations of CrVI, CrT, and molybdenum. Some samples at AOC 6 (Cooling Tower B) have a similar trend. The reason for the colocation of these constituents is unknown.

The quantity of liquid released from the hot water basin is unknown; however, periodic overflows are known to have occurred. The quantity of chemicals released in the vicinity of the storage shed is also unknown but is expected to be relatively small because any spills or incidental leaks would have been small. If a large release from the hot water basin occurred, it could have resulted in cooling water reaching the storm drain system and being discharged outside the fence line. Potential releases from the storm drain system are addressed by the storm drain investigation program described in Section 4.3.

The presence of chromium at AOC 5 is likely related to the release of cooling water. Until approximately 1964, cooling water blowdown containing CrVI was discharged to Bat Cave Wash from historical discharge piping. From approximately 1964 to 1985, cooling water blowdown containing CrVI was discharged to the cooling water treatment system as part of routine operations (CH2M 2007a). Potential leaks from the cooling water treatment transference piping are addressed by the AOC 18 investigation program (Section 4.2.14), and effects outside the fence line due to routine cooling water blowdown discharge are evaluated in AOC 1 and SWMU 1 (Section 4.1.1).

Finally, while there is no information indicating that the concrete hot water basins have lacked integrity in the past, some concerns have been expressed that it is possible that small quantities of cooling water may have been released to shallow soil directly beneath the basins. Available information indicates that the hot water basins maintained their integrity.

As part of the cooling tower replacement project, the hot water basins were cleaned, descaled, and inspected. According to the monthly status report provided by ICF Kaiser, the vendor managing the cooling tower replacement project, the basin floor did not exhibit "…any structural cracks or other injurious flaws that would have allowed basin water to leak out through the containment of the floor" (ICF Kaiser 2000). However, concrete is not impervious, and contaminants can penetrate an intact concrete surface. The report also indicated that while some minor repairs to the basin walls were required and there were many visible cracks or fissures in the concrete side walls, they appeared to be only hairline at and below the water mark of the walls. Once the walls were repaired, an epoxy coating was applied to the basins.

The primary source medium at AOC 5 is surface soil. Because most of the area around the cooling tower and former chemical shed is covered with gravel, liquids released in AOC 5 would have been released to surface soil and infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils. Because the entire AOC is covered with gravel or pavement, runoff of contaminated surface soil in rainwater is not considered a potential migration pathway. Stained concrete has not been identified at this unit.

The normal operation of the cooling towers also included some loss of cooling water through evaporation or mist from the top of the tower; this phenomenon is known as drift. As discussed in the Revised *Final RCRA Investigation/Remedial Investigation Report, Volume 1 Site Background and History, PG&E Topock Compressor Station, Needles, California (*CH2M 2007a), drift accounts for an estimated 1% of total cooling water losses from a cooling tower. Chemicals released in drift could have affected concrete surfaces and surface soils in unpaved areas. In paved areas, chemicals deposited from drift would ultimately have been discharged to storm drains with surface water runoff.

Exhibit 4-20. Conceptual Site Model – AOC 5
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Potential historical liquids discharges (spills) and leaks (possible discharge to storm drain system and discharge offsite) **COPCs include:** • PCBs • PAHs • Dioxins and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker

4.2.6.6 Evaluation of Data Against Data Quality Objectives for AOC 5

This section discusses the evaluation of data against DQOs for AOC 5.

Decision 1 (Nature and Extent Determination): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 5 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are covered with gravel, paved, or otherwise covered with an impermeable surface preventing surface soil migration. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS and IMs): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

4.2.7 AOC 6 – Cooling Tower B

This section provides details about AOC 6 – Cooling Tower B.

4.2.7.1 Setting

AOC 6 includes the area below and surrounding Cooling Tower B, as shown on Figure 2-2. The new Cooling Tower B is in the same location as the original northern Cooling Tower B. AOC 6 encompasses the following areas:

- Site of the cooling tower
- Site of the former chemical shed
- Site of the current cooling water treatment product tanks
- Site of the sulfuric acid tank (SWMU 11N)

The area around the cooling tower is largely unpaved but covered with gravel, with pavement surrounding the AOC 5 boundary.

4.2.7.2 Unit History

Operations at AOC 6 consist of the storage, handling, and use of cooling water additives. Operations began in 1954 with the construction of a two-cell cooling tower. From 1954 to 1985, chromium-based corrosion inhibitors were used to treat the cooling water. From 1985 to the present time, nonhazardous, phosphate-based inhibitors, scale control agents, and biocides have been used. Sulfuric acid has been used from 1954 to the present time to control the pH of the cooling water (CH2M 2007a).

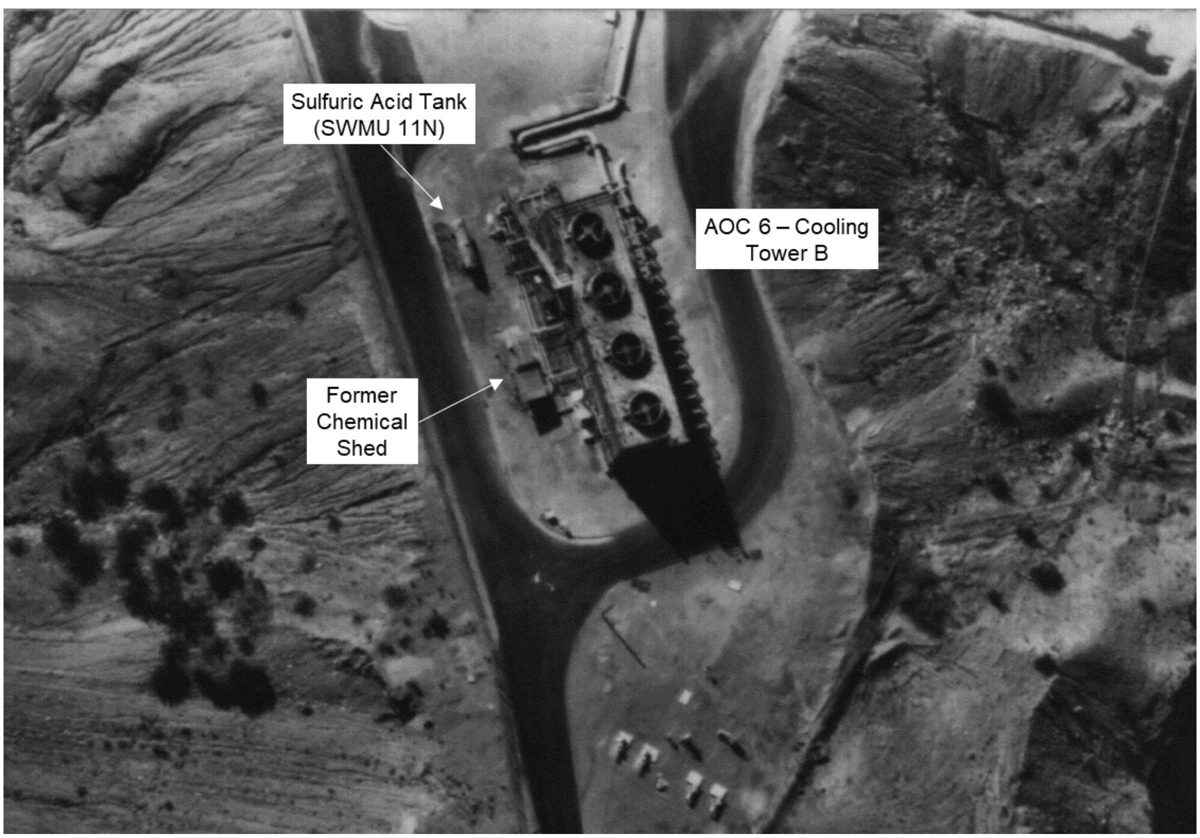
The major features located in AOC 6 are as follows.

Cooling Tower B. The original Cooling Tower B was a coil shed tower constructed as a two-cell unit in 1954 to support the expansion of the TCS. Cooling Tower B was subsequently expanded to a four-cell tower in 1958. The original tower was replaced with a new tower in 2002. The cooling tower is used to cool compressed natural gas and lubricating oil cooling water. The original tower was located within a concrete water basin that held heated cooling water (hot water basin). The original hot water basin is no longer used for collecting cooling water. A former TCS employee stated that he had observed cooling water from Cooling Tower B overflowing and discharging into the Northeast Ravine (Russell, pers. comm. 2006b).

Former Chemical Shed. The former chemical shed was located approximately 15 feet east of Cooling Tower B (Photographs 4.2.6-1 and 4.2.6-2 in Section 4.2.6, and Photograph 4.2.7-1). The shed was used to store the chromium-based cooling water additives used in the cooling tower from 1954 to 1985, as well as sulfuric acid before the installation of the sulfuric acid tanks (CH2M 2007a). The shed was demolished in the winter of 2001 in conjunction with the installation of the new cooling tower. Stained soil was observed beneath the shed following its removal. The stained soil was removed, generating five drums of material that were shipped offsite for disposal. Soil disposal characterization data are not available. The excavation was backfilled with clean soil. No confirmation samples were collected. As part of the new cooling tower construction, a reinforced-concrete pad was built adjacent to the removal area, and a small portion of the area is covered with this pad.

Sulfuric Acid Tank (SWMU 11N). Sulfuric acid has been used at this site to control the pH of the cooling water in Cooling Tower B (Photograph 4.2.7-1). The original tank was an unlined steel AST with a capacity of 2,600 gallons. The tank was located within a concrete secondary containment area. In 1984, the original tank was replaced with a new epoxy-lined AST of the same size and capacity (PG&E 1984a). Section 4.2.5 provides additional details about the sulfuric acid tank.

Chemical Storage Tanks. There are currently three ASTs at AOC 6 located just east of Cooling Tower B that are used for the storage of phosphate-based cooling water treatment products. The tanks are constructed of polyethylene and have secondary containment. Currently, there are six additives, including sulfuric acid, that are used to manage corrosion and microbiological activity in the cooling towers. The tanks are replaced by the vendor as needed.



Photograph 4.2.7-1: October 6, 1966 Aerial Photograph (cropped), Cooling Tower B and Associated Structures. Note: Top of image is to the south.

4.2.7.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 6 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 6 predominantly comprises a relatively homogeneous unit of sand with gravel and cobbles, with up to approximately 80 to 85% fine to coarse sand and 15 to 20% gravel and cobbles. Lithology was recorded to a maximum depth of 10 feet bgs.

Debris observed in samples collected at AOC 6 include wood debris encountered at approximately 3 feet bgs at boring AOC6-2.

4.2.7.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-20a through 3-20i provide analytical results for AOC 6, and Figures 3-13a through 3-13j show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.7.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Nature and extent are discussed based on the available data; however, the decision for DQO 1 is deferred until the entire unit becomes available for sampling.

Metals: Soil samples were collected at up to 18 locations from 0 foot to 10 feet bgs. The CSL was exceeded for CrVI at 1 location, PS-6. BK values were also exceeded for the following analytes:

- CrT
- Copper
- Lead
- Molybdenum
- Zinc

Those analytes exceeded at one or more of the following locations (Table 3-20a):

- 2B-Tower
- 3B-Tower
- AOC6-1
- AOC6-2
- AOC6-3
- AOC6-4
- AOC6-5
- AOC6-6
- AOC6-7
- AOC6-8
- AOC6-OS1
- B Tower SE Standpipe
- PS-1 through PS-7

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The most frequently detected analytes exceeding BK levels were as follows:

- CrVI was detected exceeding its BK value (0.83 mg/kg) in 16 samples between depths 0 foot and 6 feet bgs (Table 3-20a). The greatest CrVI concentration of 15.3 mg/kg was detected at sample location PS-6 at 0 foot bgs (Figure 3-13b).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 15 samples between depths 0 foot and 6 feet bgs (Table 3-20a). The greatest CrT concentration of 459 mg/kg was detected at sample location PS-6 at 0 foot bgs. A sample from location PS-6 was collected on the southeastern side of the cooling tower (Figure 3-13c).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 19 samples between depths 0 foot and 10 feet bgs (Table 3-20a). The greatest copper concentration of 250 mg/kg was detected at sample location AOC6-4 at the surface to 0.5 foot bgs. A sample from location AOC6-4 was collected southwest of the cooling tower along aboveground pipelines (Figure 3-13d).
- Lead was detected exceeding its BK value (8.39 mg/kg) in 12 samples between depths 0 foot and 6 feet bgs (Table 3-20a). The greatest lead concentration of 73 mg/kg was detected at sample location AOC6-7 at 5 feet to 6 feet bgs. A sample from location AOC6-7 was collected on the western side of the cooling tower along aboveground pipelines (Figure 3-13e).
- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 11 samples between depths 0 foot and 6 feet bgs (Table 3-20a). The greatest molybdenum concentration of 15 mg/kg was detected at sample location AOC6-1 at the surface to 0.5 foot bgs. A sample from location AOC6-1 was collected in the northeastern corner of the unit (Figure 3-13f).
- Zinc was detected exceeding its BK value (58 mg/kg) in 20 samples between depths 0 foot and 6 feet bgs (Table 3-20a). The greatest zinc concentration of 1,130 mg/kg was detected at sample location PS-6 at 0 foot bgs. A sample from location PS-6 was collected on the southeastern side of the cooling tower (Figure 3-13g).

The lateral extent of the exceedances has been defined by samples with results less than CSLs and BK values or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results not detected exceeding reporting limits except at locations with only shallow soil samples (0 foot and 3 feet bgs) (Table 3-20a). These shallow exceedances do not represent data gaps requiring further investigation because nearby deeper samples have defined the vertical extent. Further, these BK exceedances are less than the CSL; therefore, they do not present a threat to workers.

CLP Inorganics: Samples were collected at 3 locations from 0 foot to 6 feet bgs. No samples had detected results that exceeded their respective BK levels or CSLs (Table 3-20b).

PAHs: Samples were collected at 6 locations from 0 foot to 6 feet bgs. No samples had detected results that exceeded their respective CSLs (Table 3-20c).

TPH: Samples were collected at 1 location from 0 foot to 0.5 foot bgs. No samples had detected results that exceeded their respective CSLs (Table 3-20d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected at 9 locations from 0 foot to 9 feet bgs (Table 3-20e). ISLs were not established for general chemistry parameters.

Pesticides: Samples were collected at 2 locations from 0 foot to 0.5 and 5 feet to 6 feet bgs. No samples had detected results that exceeded their respective CSLs (Table 3-20f).

PCBs: Samples were collected at 8 locations from 0 foot to 9 feet bgs. The CSLs for Aroclor 1254 and Aroclor 1260 were exceeded at one or more of the following locations (Table 3-20h):

- AOC6-4

- AOC6-7
- AOC20-OS09

Exceedances are described as follows:

- Aroclor 1254 was detected exceeding the CSL value (970 µg/kg) at 4 locations between depths 0 foot and 6 feet bgs (Table 3-20g). The greatest Aroclor 1254 concentration of 2,800 µg/kg was detected at sample location AOC6-7 at the surface to 0.5 foot bgs. A sample from location AOC6-7 was collected on the western side of the cooling tower along aboveground pipelines (Figure 3-13i).
- Aroclor 1260 was detected exceeding the CSL value (990 µg/kg) at 2 locations between depths 0 foot and 6 feet bgs (Table 3-20g). The greatest Aroclor 1260 concentration of 1,200 µg/kg was detected at sample location AOC6-7 at 5 feet to 6 feet bgs. A sample from location AOC6-7 was collected on the western side of the cooling tower along aboveground pipelines.

The lateral and vertical extents of exceedances have been defined by samples less than CSLs or not detected exceeding reporting limits.

Dioxins and Furans: Samples were collected at 6 locations from 0 foot to 3 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSL (220 ng/kg) was exceeded at locations AOC6-1 and AOC6-7, as shown in Table 13-20h.

TEQ human was detected exceeding the CSL in 3 samples between depths 0 foot and 3 feet bgs (Table 3-20h). The greatest TEQ human concentration of 730 ng/kg was detected at sample location AOC6-7 at 2 feet to 3 feet bgs and exceeded the CSL of 220 ng/kg. A sample from location AOC6-7 was collected on the western side of the cooling tower along aboveground pipelines (Figure 3-13j).

The lateral extent of exceedances has not been defined within the unit boundaries; however, the lateral extent is defined within the TCS by samples less than CSLs or not detected exceeding BK. This does not represent a data gap requiring further investigation. The vertical extent of exceedances has not been defined. Deeper samples could not be collected at AOC 6, and additional sampling around AOC 6 would be difficult, as the unit is active. Therefore, the determination of nature and extent is deferred until the entire unit becomes available for sampling.

4.2.7.5 AOC 6 Conceptual Site Model

Figure 4-16 is a graphical CSM developed for AOC 6 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-21 presents the following information for AOC 6:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b), and is summarized in this section, with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 6 are as follows:

- Potential historical liquid discharges (spills) from the cooling tower hot water basin (while the old cooling tower was in operation)

- Potential incidental spills of cooling system additives during storage or transfer of the additive chemicals
- Potential releases of PCBs (Aroclors 1254 and 1260) from electrical transformers

The quantity of liquid released from the hot water basin is unknown; however, periodic overflows are known to have occurred. The quantity of chemicals released in the vicinity of the storage shed is also unknown but is expected to be relatively small because any spills or incidental leaks would have been small.

If a large release from the hot water basin occurred, it could have resulted in cooling water reaching the storm drain system and being discharged outside the fence line, most likely to AOC 11. In addition, if large quantities of cooling water overflowed, they also could have migrated to the west to the TCS access road and potentially down the TCS access road to the lower yard. Potential releases from the storm drain system are addressed by the storm drain investigation program described in Section 4.3. Downslope impacts to the east are addressed by the investigation being conducted for AOC 11 (Section 4.1.5), and potential impacts to the lower yard are being addressed in AOC 13 (Section 4.2.10).

The presence of chromium at AOC 6 is likely related to the release of cooling water. Until approximately 1964, cooling water blowdown containing CrVI was directly discharged to Bat Cave Wash. Engineering drawings also indicate that some of the blowdown from AOC 6 may initially have been discharged to Bat Cave Wash and the eastern edge of the TCS (AOC 11) from the storm drain system (PG&E 1957a). From approximately 1964 to 1985, cooling water blowdown containing CrVI was processed by the cooling water treatment system as part of routine operations and then discharged. Potential leaks from the cooling water treatment transference piping are addressed by the AOC 18 investigation program (Section 4.2.14), and effects outside the fence line due to routine cooling water blowdown discharge are evaluated in AOC 1 and SWMU 1 (Section 4.1.1).

Finally, while there is no information indicating that the concrete hot water basin of the cooling tower lacked integrity in the past, some concerns have been expressed that it is possible that small quantities of cooling water may have been released to shallow soil directly beneath the hot water basin. Available information indicates that the hot water basins maintained their integrity.

As part of the cooling tower replacement project, the hot water basins were cleaned and inspected. According to one of the monthly status reports provided by ICF Kaiser (the vendor managing the cooling tower replacement project), the basin floor did not exhibit "…any structural cracks or other injurious flaws that would have allowed basin water to leak out through the containment of the floor" (ICF Kaiser 2000). However, concrete is not impervious, and contaminants can penetrate an intact concrete surface.

The report also indicated that while some minor repairs to the basin walls were required and there were many visible cracks or fissures in the concrete side walls, these cracks appeared to be only hairline at and below the water mark of the walls. Once the walls were repaired, an epoxy coating was applied to the basins (ICF Kaiser 2000).

The primary source medium at AOC 6 is surface soil. Because most the area around the cooling tower and former chemical shed is covered with gravel, liquids released in AOC 6 would have been released to surface soil and would have infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils. If present, organic constituents in surface soils could have been degraded by heat and light. Because the entire AOC 6 is covered with gravel or pavement, runoff of contaminated surface soil in rainwater is not considered a potential migration pathway. Stained concrete has not been identified at this unit.

The normal operation of the cooling towers also included some loss of cooling water through evaporation or mist from the top of the tower; this phenomenon is known as drift. As discussed in the Revised *Final RCRA Investigation/Remedial Investigation Report, Volume 1 - Site BK and History, PG&E Topock Compressor Station, Needles, California* (CH2M 2007a), drift accounts for an estimated 1% of total cooling water losses from a cooling tower. Chemicals released in drift could have affected concrete surfaces and surface soils in unpaved areas. In paved areas, any chemicals deposited from drift would ultimately have been discharged to storm drains with surface water runoff.

Exhibit 4-21. Conceptual Site Model – AOC 6
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Potential historical liquids discharges (spills) and leaks (possible discharge to storm drain system and discharge offsite) **COPCs include:** • Metals • Dioxins and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker
Potential releases from electrical transformers **COPCs include:** • PCBs • Dioxins and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	

4.2.7.6 Evaluation of Data Against Data Quality Objectives for AOC 6

This section discusses the evaluation of data against DQOs for AOC 6.

Decision 1 (Nature and Extent Determination): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan and subsequent data gap investigations. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 6 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are covered with gravel, paved, or otherwise covered with an impermeable surface preventing surface soil migration. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS and IMs): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

4.2.8 AOC 7 – Hazardous Materials Storage Area

This section provides details about AOC 7 – Hazardous Materials Storage Area.

4.2.8.1 Setting

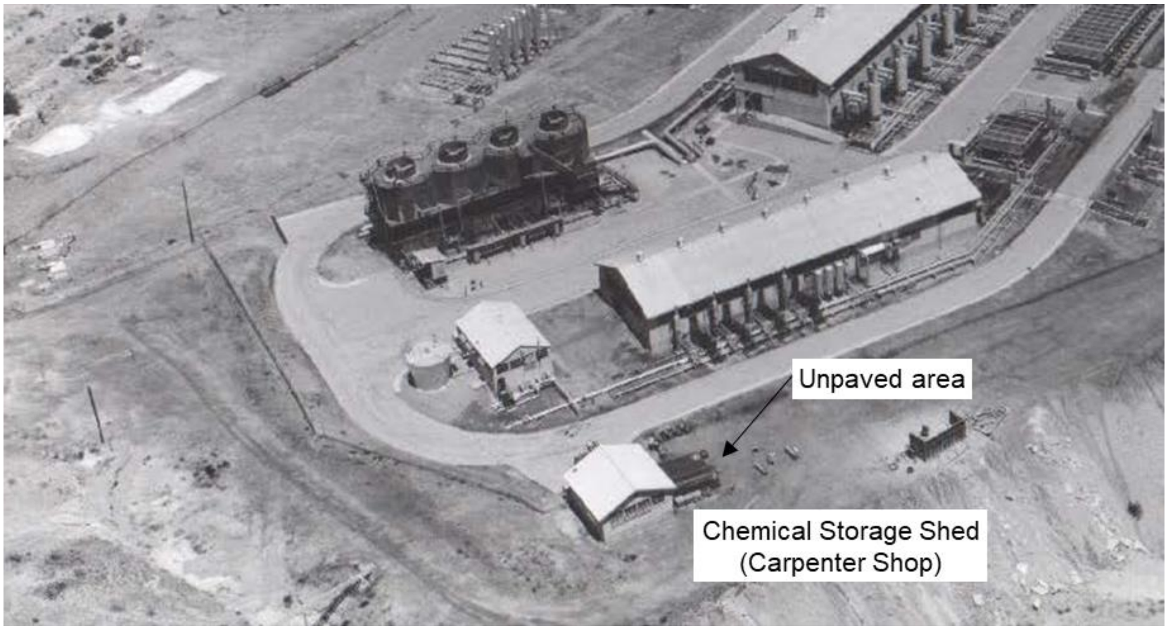
AOC 7 consists of the former hazardous materials storage area and loading dock, and the adjacent Carpenter Shop (former Chemical Storage Building) (Figure 2-2). The hazardous material storage area was used since at least the mid-1980s to 2018 to store chemical products used at the station (CH2M 2007a). The former Chemical Storage Building was constructed in 1951 as part of the original TCS configuration. This facility was concrete-lined and is equipped with secondary containment walls. Construction occurred at AOC 7 between 2018 and 2021 for the final groundwater remedy, and the area is now partially covered by the Water Conditioning Tank Farm for the groundwater remedy.

4.2.8.2 Unit History

The area served as the storage area for hazardous wastes generated at the TCS (for example, oily rags, used oil filters). This area was used for the collection and storage of hazardous materials since at least the early to mid-1980s to 2018. The area was also used to store chemical products used at the TCS, such as:

- Lubricants
- Parts cleaning compounds
- Small quantities of solvents

This area had apparently always been used for chemical storage (Riddle, pers. comm. 2004), though the types of chemicals stored is unknown. A roof was installed over the storage area during the 1960s (Russell, pers. comm. 2006b). Review of aerial photographs suggests that this area was unpaved until at least the mid-1950s (Photograph 4.2.8-1).



Photograph 4.2.8-1: May 19, 1955 Aerial Photograph 2 (cropped), The Chemical Storage Shed
Note: The shed is now the Carpenter Shop. Also shows the adjacent unpaved area. Photo facing northwest.

Between 2018 and 2021, the hazardous materials storage area was removed, and part of AOC 7 was covered during construction of the groundwater remedy. Baseline and opportunistic sampling occurred in the vicinity of AOC 7 during this process (Appendix F). The Water Conditioning Tank Farm was constructed over the former hazardous materials storage area (Photograph 4.2.8-2).

Photograph 4.2.8-2: April 23, 2021, Photograph of The Water Conditioning Tank Farm
Note: Constructed over the former hazardous materials storage area. Photo facing south.

4.2.8.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 7 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 7 comprises a unit of silty sand with gravel with approximately 60 to 90% silty sand and 10 to 40% gravel up to 4 inches in diameter. Lithology was recorded to a maximum depth of 3 feet bgs at AOC 7.

4.2.8.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-21a through 3-21h provides analytical results for AOC 7, and Figures 3-11a and 3-11b show sampling locations and results. Figures 3-14a through 3-14o show sampling locations and results for AOC 13.

This section provides a discussion about the screening level exceedances. Section 4.2.8.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Soil locations AOC7-1 and AOC7-2 were removed during construction of the Water Conditioning Tank Farm. These results will not be included in the nature and extent discussion, as they are no longer representative of Site conditions. However, the results for locations AOC7-1 and AOC7-2 are included in Tables 3-21a through 3-21h for completeness.

Metals: Soil samples were collected from 3 locations at depths from 0 foot to 3 feet bgs. No CSLs were exceeded in AOC 7. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. BK concentrations were exceeded for the following analytes at one or more locations across AOC 7, as shown in Table 3-21a:

- CrVI
- Cobalt
- Lead
- Molybdenum

The analytes most frequently detected exceeding the BK concentration were as follows:

- CrVI was detected exceeding the BK value (0.83 mg/kg) in 2 samples between depths 0 foot to 3 feet bgs (Table 3-21a). The greatest CrVI concentration of 1.2 mg/kg was detected at sample location AOC7-4 at the surface to 1 foot bgs. A sample from location AOC7-2 was collected near the northwestern corner of the building (Figure 3-14d). CrVI was also detected exceeding BK in 2 samples collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC7-GRBS-01 and AOC7-OPP-BLK at 1.7 J (estimated) mg/kg and 1.2 J (estimated) mg/kg, respectively (Table F-1a).

- Lead was detected exceeding the BK value (8.39 mg/kg) in 2 samples between depths 0 foot and 3 feet bgs (Table 3-21a). The greatest lead concentration of 11 mg/kg was detected at sample location AOC7-5 at 2 feet to 3 feet bgs. A sample from location AOC7-5 was collected along the eastern side of the building (Figure 3-14h). Lead was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC7-OPP-BLK at 29 mg/kg (Table F-1a).

The lateral extent of the exceedances has been defined by samples with results less than the BK level or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, except at AOC7-5, where analytes exceeded their respective BK concentrations, as shown in Table 3-21a. At this location, the detected metal results are only slightly greater than (less than 1.5 times) their respective BK values and do not exceed RBCs or RBRGs. Concentrations at AOC7-5 are not considered a vertical data gap requiring additional investigation.

CLP Inorganics: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs or BK levels (Table 3-21b). There were no exceedances of CSLs or BK values in the sample collected during the groundwater remedy construction (Table F-1b).

PAHs: Samples were collected from 5 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-21c). There were no exceedances of CSLs in the samples collected during the groundwater remedy construction (Table F-1c).

TPH: Samples were collected from 3 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-21d). There were CSL exceedances of TPH in one of the samples collected during the groundwater remedy construction, AOC7-OPP-BLK, at 2,700 mg/kg and 20,000 mg/kg for TPH-d and TPH-mo, respectively (Table F-1d).

VOCs and SVOCs: Samples were collected from 3 locations, and no samples had detected results of VOCs or SVOCs.

General Chemistry: Samples were collected from 3 locations and were only analyzed for pH, which has no CSL or BK level (Table 3-21e).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 3 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-21f). There were no exceedances of CSLs in the sample collected during the groundwater remedy construction (Table F-1g).

Dioxins and Furans: Dioxins and furans were not collected from locations that are still present at AOC 7 after Phase 1 groundwater remedy construction.

4.2.8.5 AOC 7 Conceptual Site Model

Figure 4-17 is a graphical CSM developed for AOC 7 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-22 presents the following information for AOC 7:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in Soil Part B DQOs TM (CH2M 2011b), and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination at AOC 7 are likely to be incidental spills of hazardous materials or waste during storage or transfer of the materials. The specific compounds released, if any, are unknown. The potential quantities of chemicals released in AOC 7 are also unknown; however, quantities are expected to be relatively small because the containers stored in this area have capacities of 55 gallons or less.

The presence of low-level detections of PAHs, TPH, and PCBs are consistent with this Site being used for chemical and hazardous material storage (for example, oily rags, used oil filters, lubricants). In addition, the oiling of roads for dust suppression is also a potential source of COPCs at AOC 7. No VOCs or SVOCs were detected in AOC 7, indicating potential leaks or spills of chemical products, like parts cleaning compounds or solvents, did not affect soil at the Site.

Because of the small quantity of materials that would have been released at any one time, it is not expected that the material would have migrated to nearby storm drains; however, this potential migration pathway is included for completeness. Releases from the storm drain system are addressed by the storm drain investigation program described Section 4.3.

The original drawings for the Chemical Storage Building also show a sink in the southwestern corner of the building. The piping diagram for the sink shows a line (presumably the water line) entering the building from the southwest and a drain line exiting to the east. The drawing indicates that the location of the drain line was to be determined during construction (PG&E 1953). A pipe is visible in the floor at the approximate location of the sink; however, it is unknown where the drain line led or whether it may have been connected to the septic system (AOC 17).

The primary source media at AOC 7 are pavement and surface soil. Most of the area around AOC 7 is asphalt-paved or covered by concrete foundations, or covered by the groundwater remedy water conditioning tank farm; however, unpaved soils are present immediately to the east of this unit. Liquids released in AOC 7 would either have been released to pavement or to surface soil. From surface soils, materials could have infiltrated to shallow soil and subsurface soil. Some materials could potentially also have penetrated the asphalt paving.

The concrete foundations in this area are quite thick, and it is unlikely that any materials migrated through the concrete. If any materials did penetrate either asphalt or concrete and reach surface soil, they could also have migrated into shallow soil. Discharges from potential leaks from the sink drain line could also have reached shallow soil.

COPCs in surface soil in unpaved areas may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 7, this migration may result in COPCs near the station fence line migrating down the hillside to AOC 9 or AOC 10 and continuing down the flow path of East Ravine.

In the paved area, movement of contaminants with rainwater (that is, infiltration) is not considered an existing pathway, and any liquids released are unlikely to have migrated to subsurface soils. The analytical results for AOC 7 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time. Runoff of contaminated surface soil in rainwater is a potential migration pathway from the eastern side of this AOC.

Exhibit 4-22. Conceptual Site Model – AOC 7
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental spills from Hazardous Material Storage Building, and use of oil as a dust suppressant **COPCs include:** • Metals	• Surface soil • Pavement	• Percolation • Infiltration • Potential entrainment in stormwater or surface water runoff	• Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.2.8.6 Evaluation of Data Against Data Quality Objectives for AOC 7

This section discusses the evaluation of data against DQOs for AOC 7.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-21a through 3-21g and Figures 3-13a and 3-13b, and 3-14a through 3-14o present analytical results. Table 3-21h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 11 samples were collected from 5 locations at depths ranging from 0 foot to 3 feet bgs. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 7 may pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 7 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- PAHs
- VOCs
- SVOCs
- TPH
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). No ISLs were exceeded.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion was observed. No samples were collected in perimeter locations in areas of significant erosion at AOC 7. Potential migration of contamination at depth from AOC 7 does not appear to be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 7 were collected at AOC7-1. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.9 AOC 8 – Paint Shed

This section provides details about AOC 8 – Paint Shed.

4.2.9.1 Setting

AOC 8 consisted of a small storage locker used for paint storage, as shown on Figure 2-2. The locker was 5 feet wide by 5 feet long and was set back into the southern retaining wall at the TCS. The paint locker was constructed of steel with tight-fitting doors and was located on pavement. It was designed for the fire-safe storage of flammable materials. Between 2018 and 2021, the paint shed was removed, and part of AOC 8 was covered during construction of the groundwater remedy.

4.2.9.2 Unit History

Large-scale painting activities at the TCS are handled by outside crews (Riddle, pers. comm. 2004). Therefore, only small quantities of paint and thinners used for minor touchup work were stored in this shed. Paint was stored in both spray cans and in 1- to 5-gallon cans. Nonchlorinated paint thinners were also stored in 1-gallon cans. About 100 gallons of paint and thinners were routinely stored in this shed. No evidence of releases is present in or around the shed.

It is likely that paints contained within the locker have consisted of both oil- and water-based paints. Thinners are believed to have consisted of nonchlorinated thinners. During the use of these products, it is possible that small quantities of paint or thinners may have spilled in the vicinity of the paint locker.

4.2.9.3 Lithology Description

The soil at the TCS project area generally comprises f alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 8 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 8 comprises a unit of silty sand with gravel with approximately up to 90% silt and sand and 10% or more gravel up to 1 inch in diameter. Lithology was recorded to a maximum depth of 3 feet bgs at AOC 8.

4.2.9.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-22a through 3-22e provide analytical results for AOC 8, and Figures 3-14a through 3-14o show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.9.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from two locations at depths from 0 foot to 3 feet bgs. No CSLs were exceeded in AOC 8. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. BK concentrations were exceeded for the following analytes (Table 3-22a):

- CrT
- Copper
- Molybdenum
- Nickel

The analytes most frequently detected at concentrations exceeding BK concentrations were as follows:

- Copper was detected exceeding the BK value (16.8 mg/kg) in 2 samples between depths 0 foot and 3 feet bgs (Table 3-22a). The greatest copper concentration of 18 mg/kg was detected at sample location AOC8-1 at the surface to 0.5 foot bgs. A sample from location AOC8-1 was collected on the southern side of the paint locker (Figure 3-14c). The concentrations detected (18 and 17 mg/kg) are within the range of BK.
- Molybdenum was detected exceeding the BK value (1.37 mg/kg) in 2 samples between depths 0 foot and 3 feet bgs (Table 3-22a). The greatest molybdenum concentration of 5.1 mg/kg was detected at sample location AOC8-2 at 2 feet to 3 feet bgs. A sample from location AOC8-2 was collected on the northern side of the paint locker beneath pavement (Figure 3-14i).

The lateral extent of the exceedances has been defined by samples with results less than the BK levels or not detected exceeding reporting limits. The vertical extent of the exceedance of molybdenum has not been defined, as it exceeds the BK concentration in the deepest sample (2 feet to 3 feet bgs). This minor exceedance of the BK value does not present an unacceptable risk to receptors, as it is more than 2 orders of magnitude less than the CSL or RBC. This minor molybdenum exceedance at depth is not considered a data gap requiring further investigation.

CLP Inorganics: Samples were collected at 1 location, and no samples had detected results that exceeded their respective BK levels (Table 3-22b).

PAHs: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-22c).

TPH: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-22d).

VOCs: Samples were collected at 2 locations and analyzed for VOCs. No samples had detected results of VOCs.

General Chemistry: General chemistry parameters were not a COPC for this unit; therefore, samples were not analyzed for general chemistry parameters.

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: PCBs were not a COPC for this unit; therefore, samples were not analyzed for PCBs.

Dioxins and Furans: Dioxins and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans.

4.2.9.5 AOC 8 Conceptual Site Model

Figure 4-17 is a graphical CSM developed for AOC 8 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-23 presents the following information for AOC 8:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included the Soil Part B DQOs TM (CH2M 2011b), and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

If contamination is found at AOC 8, the likely source would be incidental spills of paints and paint thinners (solvents) to pavement. However, there is no information indicating that any spills have occurred, and the maximum quantity likely to be released at any one time would be small (that is, 5 gallons or less of paint; 1 gallon or less of thinners). Additionally, no VOCs were detected in soil at AOC 8.

Because of small quantity of materials that would have been released at any one time, it is highly unlikely that material would have migrated to nearby storm drains; however, this potential migration pathway is included for completeness. Releases from the storm drain system are addressed by the storm drain investigation program described in Section 4.3.

The primary source medium at AOC 8 is pavement. Because most of the area around the paint locker is asphalt-paved, liquids released in AOC 8 would have been released to pavement and potentially infiltrated to surface soil. If any materials did penetrate the pavement and reach surface soil, they could also have migrated into shallow soil. Because the area is paved, movement of contaminants with rainwater (that is, infiltration) is not considered an existing pathway, and any liquids released are unlikely to have migrated to deeper soils. The analytical results for AOC 8 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time. Runoff of contaminated surface soil in rainwater is a potential migration pathway from the southern side of this AOC.

Exhibit 4-23. Conceptual Site Model – AOC 8
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental spills from paint locker **COPCs include:** • Metals	• Pavement	• Percolation • Potential entrainment in stormwater and surface water runoff	• Surface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.2.9.6 Evaluation of Data Against Data Quality Objectives for AOC 8

This section discusses the evaluation of data against DQOs for AOC 8.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-22a through 3-22d and Figures 3-14a through 3-14o provide analytical results. Table 3-22e provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 4 samples were collected from 2 locations at depths ranging from 0 foot to 3 feet bgs for AOC 8. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled by sampling that occurred at AOC 7, which is immediately adjacent. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 8 may pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. One surface soil sample was collected from an unpaved areas (AOC8-1) between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- VOCs
- SVOCs
- TPH

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISLs for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for mercury.

Mercury was detected at a concentration exceeding the ISL (ECV) of 0.0125 mg/kg in the 1 sample (AOC8-1) at a concentration of 0.31 mg/kg.

Table 3-39j summarizes the greatest exceedances and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion (for unpaved areas only), mercury near AOC 8 may have the potential to migrate outside the fence line.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at AOC 8. Potential migration of contamination at depth from AOC 8 does not appear to be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 8 were collected at AOC8-1. Table 3-38 presents results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.10 AOC 13 – Unpaved Areas within the Topock Compressor Station

This section provides details about AOC 13 – Unpaved Areas within the TCS.

4.2.10.1 Setting

AOC 13 consists of current and formerly unpaved areas within the fence line of the TCS, as shown on Figure 4-18. These areas may have been impacted incidentally as a result of facility activities. In addition, former employees have reported, and existing documentation suggests, that pipeline liquids or waste oil were sprayed on station roads for dust control (PG&E 1980; Russell, pers. comm. 2006c).

Some dark staining on the eastern side of the TCS is visible in the May 1955 aerial photographs, likely as a result of applying oil for dust suppression (Photograph 4.2.10-1). Incidental staining is also visible in the lower yard in construction photographs taken in the early 1950s. Black-stained material was also encountered between approximately 1 foot and 3 feet bgs during opportunistic sampling and trenching activities conducted from 2019 through 2022 in the southwestern portion of the TCS. Appendix F discusses the black staining and associated samples.

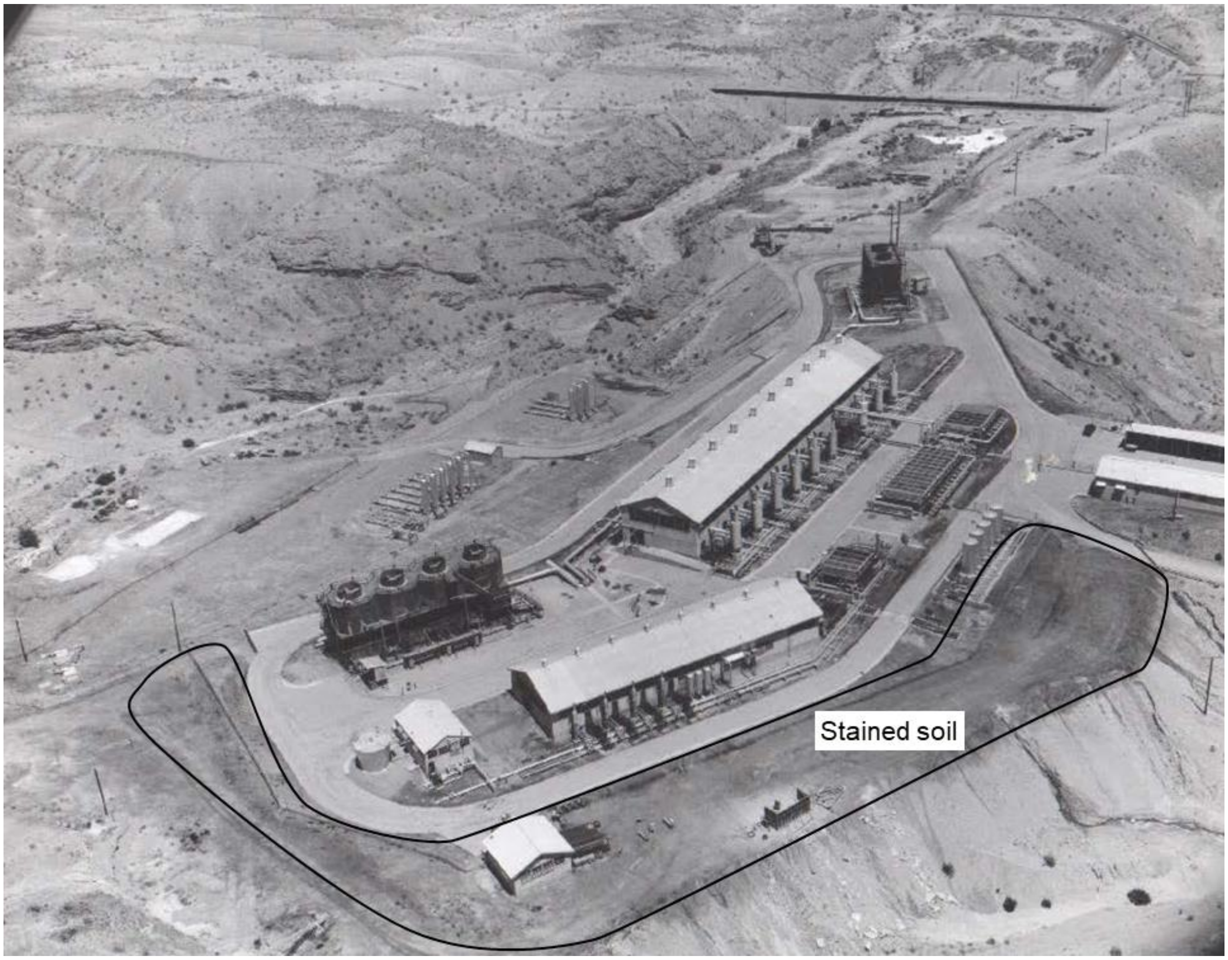
Currently, the unpaved areas in the upper yard are located in various strips and patches among buildings and structures on this active facility. Most of the unpaved areas within the fence line lie within the lower yard on the western side of the TCS. Formerly unpaved areas that are now paved or covered by buildings include much of the upper yard, including most of the area east of the main TCS buildings (that is, east of the Compressor and Auxiliary Buildings). Given that stormwater runoff is likely to have traversed various areas, pipeline liquids could have been sprayed in various areas, and potential spills of cooling water could have occurred in various areas, AOC 13 will be addressed as one unit across the entire TCS.

4.2.10.2 Unit History

Several historical spills occurred at the TCS associated with AOC 13. Section 1.3.1 provides details about historical spills. Confirmation sample results from these spills are included in Tables 3-23a through 3-23j, as applicable. All spill sample results contain the word 'spill' and the date of the spill in the Location column of the associated tables.

Detailed information regarding each of these spills is presented in the *Revised Final RCRA Investigation/Remedial Investigation Report, Volume 1 - Site Background and History, PG&E Topock*

Compressor Station, Needles, California (CH2M 2007a). None of the spill samples were analyzed for pesticides or dioxins and furans (Tables B11-8 and B11-9 provide the available data for these constituents). Spill samples are included in the samples counts and comparisons to screening values presented in Table 3-23j.



Photograph 4.2.10-1: May 19, 1955, Aerial Photograph 2, Topock Compressor Station
Note: Facing northwest. Dark staining visible on eastern side of the TCS.

4.2.10.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. Borings were advanced at numerous locations across the TCS for AOC 13; therefore, the lithology varies by location. The lithology descriptions for investigation areas adjacent to sample locations also provide lithology descriptions. Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location at AOC 13.

Brown and white scale debris forming a thick layer that covers several square feet was observed at the surface at boring location AOC13-33. At boring SD-29, a 3-inch- to 6-inch-diameter red clay pipe and concrete debris fragments were encountered at 3 feet bgs. At AOC13-19, glass debris was observed at 3 feet bgs. Samples of debris not associated with soil borings (for example, AOC13-Wood, AOC13-Debris) were also collected and analyzed. Section 4.2.10.4 discusses the results of debris samples.

4.2.10.4 Analytical Results

This section provides results of soil and debris and waste samples, and the soil gas investigation.

Soil Investigation

Tables 3-23a through 3-23k provide analytical results for AOC 13, and Figures 3-14a through 3-14o show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.10.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 125 locations within AOC 13, at depths ranging from 0 foot to 160 feet bgs. The CSLs were exceeded for the following analytes at locations across AOC 13:

- Cadmium
- CrVI
- Lead
- Mercury

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. BK concentrations were exceeded for the following analytes across AOC 13 (Table 3-23a):

- Barium
- Cadmium
- CrVI
- CrT
- Cobalt
- Copper
- Lead
- Molybdenum
- Nickel
- Selenium
- Vanadium
- Zinc

The analytes that were detected more than once at concentrations exceeding CSLs are:

- Cadmium
- CrVI
- Lead

The analytes that were more frequently detected at concentrations exceeding BK levels are:

- Cadmium
- CrVI
- CrT
- Cobalt
- Copper
- Lead

- Molybdenum
- Nickel
- Zinc

The concentrations of metals at AOC 13 tend to be greatest near or between AOC 19 and AOC 15, from debris samples collected from storm drain line SDL-3 south of AOC 15, and on the northwestern slope of the TCS in the vicinity of storm drain line SD-31. The specific compounds and concentration ranges vary within these areas. Storm drain samples SD-OS34 and SD-OS42 reflect material that was removed during repairs made to SDL-3 during the storm drain investigation program described in Section 4.3. Exceedances are described as follows:

- Cadmium was detected exceeding its CSL (7.3 mg/kg) in 2 samples collected at location SD-OS34 between 0.5 foot and 4 feet bgs and its BK value (1.1 mg/kg) in 11 samples between depths 0 foot and 5.5 feet bgs (Table 3-23a). The greatest cadmium concentration of 26 mg/kg was detected at sample location SD-OS42 at 3 feet to 4 feet bgs. A sample from location SD-OS42 was collected during the storm drain investigation in a gravel area north of AOC 5 – Cooling Tower A and represents material removed during repair of the storm drain (Figure 3-14c).
- CrVI was detected exceeding its CSL (6.3 mg/kg) in 5 samples between depths 0 foot and 1 foot bgs (Table 3-23a) and its BK value (0.83 mg/kg) in 29 samples between depths 0 foot and 150 feet bgs. The greatest CrT concentration of 12.2 mg/kg was detected at sample location PS-8 at 0 foot bgs. A sample from location PS-8 was collected in a gravel area, south of AOC 19 – Former Cooling Liquid Mixing and Hotwell Area and south of a stained concrete pad (Figure 3-14d). CrVI was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-BLK at 1.6 mg/kg (Table F-1a).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 34 samples between depths 0 foot and 150 feet bgs (Table 3-23a). There were no exceedances of the CrT CSL. The greatest CrT concentration of 780 mg/kg was detected at sample location SD-OS42 at 3 feet to 4 feet bgs. A sample from location SD-OS42 was collected during the storm drain investigation from in a gravel area north of AOC 5 – Cooling Tower A and represents material removed during repair of the storm drain (Figure 3-13e). CrT was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-NAV at 45 mg/kg (Table F-1a).
- Cobalt was detected exceeding its BK value (12.7 mg/kg) in 10 samples collected between depths 0 foot and 120 feet bgs (Table 3-23a). There were no exceedances of the cobalt CSL. The greatest cobalt concentration of 27 mg/kg was detected at sample location AOC13-7 at 0 foot to 0.5 foot bgs. A sample from location AOC13-7 was collected in a gravel area, east of AOC 25 – Compressor and Generator Engine Basements (Figure 3-14f).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 73 samples between depths 0 foot and 150 feet bgs (Table 3-23a). There were no exceedances of the copper CSL. The greatest copper concentration of 830 mg/kg was detected at sample location SD-OS34 at 0.5 foot to 1 foot bgs. A sample from location SD-OS34 was collected along a storm drain line south of AOC 15 and represents material removed during repair of the storm drain (Figure 3-14g). Copper was also detected exceeding the BK value in 2 samples collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-BLK at 17 mg/kg and AOC13-PLM-OPP-NAV at 19 mg/kg (Table F-1a).
- Lead was detected exceeding its CSL (320 mg/kg) in 7 samples collected between 0 foot and 4 feet bgs (Table 3-23a) and its BK value (8.39 mg/kg) in 81 samples between depths 0 foot and 10 feet bgs. The greatest lead concentration of 1,100 mg/kg was detected at sample location SD-OS34 at 0.5 foot to 1 foot bgs and SD-OS42 at 3 feet to 4 feet bgs. A sample from location SD-OS34 was collected along a storm drain line south of AOC 15. A sample from location SD-OS42 was collected during repair of storm drain lines in a gravel area north of AOC 5 – Cooling Tower A and represents material removed during repair of the storm drain (Figure 3-14h). Lead was also detected exceeding

the BK value in 2 samples collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-BLK at 82 J (estimated) mg/kg and AOC13-PLM-OPP-NAV at 8.5 mg/kg (Table F-1a).

- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 41 samples between depths 0 foot and 160 feet bgs (Table 3-23a). There were no exceedances of the molybdenum CSL. The greatest molybdenum concentration of 120 mg/kg was detected at sample location AOC13-7 at the surface to 0.5 foot bgs. A sample from location AOC13-7 was collected in a gravel area, east of AOC 25 – Compressor and Generator Engine Basements (Figure 3-14i). Molybdenum was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-BLK at 4.9 mg/kg (Table F-1a).
- Nickel was detected exceeding its BK value (23.7 mg/k) in 20 samples collected between depths 0 foot and 150 feet bgs (Table 3-23a). There were no exceedances of the nickel CSL. The greatest cobalt concentration of 210 mg/kg was detected at sample location SD-OS34 at 0.5 foot to 1 foot bgs. A sample from location SD-OS34 was collected along a storm drain line south of AOC 15 (Figure 3-14j). Nickel was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-NAV at 28 mg/kg (Table F-1a).
- Zinc was detected exceeding its BK value (58 mg/kg) in 49 samples between depths 0 foot and 30 feet bgs (Table 3-23a). There were no exceedances of the zinc CSL. The greatest zinc concentration of 2,200 mg/kg was detected at sample location SD-OS42 at 3 feet to 4 feet bgs. A sample from location SD-OS42 was collected from a gravel area north of AOC 5 – Cooling Tower A and represents material removed during repair of the storm drain. Zinc was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC13-PLM-OPP-NAV at 120 mg/kg (Table F-1a).

The lateral extent of the exceedances has not been defined by samples with results less than BK levels or not detected exceeding reporting limits for the following metals along the slope in the northwestern corner of the TCS between AOC 6 and the lower yard (that is, sample locations AOC13-33, SD-31, and PA-02).:

- CrVI
- CrT
- Copper
- Lead
- Zinc

Copper and lead are not defined to BK in the southwestern corner of the TCS. However, exceedances are small (less than 1.5 times BK) and well less than RBCs. Although the lateral extent of copper and lead exceedances in the southwestern corner of the TCS are not defined to BK, the exceedances do not present an unacceptable risk to receptors. Therefore, the lateral extent of metals in the southwestern corner of the TCS is not considered a data gap that requires filling.

The vertical extent of exceedances has not been defined for the following metals:

- For multiple metals in the vicinity of storm drain line SDL-3 at the following sample locations:
  - SD-OS35A:
    - Cadmium
    - CrVI
    - CrT
    - Copper
    - Lead
    - Zinc

  - SD-OS35:
    - Copper
    - Lead
  - SD-OS34:
    - Copper
    - Lead

  These were opportunistic samples collected during the storm drain survey investigation and repair activities, and represent material removed during repair of the storm drain. Deeper samples were not collected.

- For CrVI and lead at sample location AOC13-33.
- For molybdenum at sample locations SD-OS38, and CrVI, CrT, and molybdenum at sample location SD-OS41. These were opportunistic samples collected during storm drain investigation and repair activities, and represent material removed during repair of the storm drain. Deeper samples were not collected.
- For copper at the southwestern corner of the TCS at the following sample locations:
  - PGE
  - LTE-OS5
  - PGE-LTE-OS6
  - PGE-LT-OS8
  - PGE-LT-OS9
  - AOC13-OS2
  - AOC13-OS4

  These were opportunistic samples collected during maintenance and construction activities. Deeper samples were not collected.

- For molybdenum at sample location BH-67.
- For CrT, nickel, and vanadium at sample location PA-OS3. These were opportunistic samples collected during maintenance and construction activities. Deeper samples were not collected.
- For multiple metals on the slope below AOC 5 at the following sample locations:
  - BGCS-4: Zinc
  - BGCS-3: Zinc
  - BGCS-2: Antimony, cadmium, and lead
  - AOC13-27: Lead

There are additional locations where the deepest samples exceed BK concentrations. However, these exceedances are defined by nearby deeper samples with concentrations less than BK, or by concentrations that do not increase with depth and are less than RBCs. As these locations do not pose unacceptable risks to receptors, these minor exceedances of the BK values are not considered a data gap requiring further investigation.

CLP Inorganics: Samples were collected from up to 22 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-23b). There were no exceedances of BK in the sample collected during the groundwater remedy construction (Table F-1b).

PAHs: Samples were collected from 92 locations at depths ranging from 0 foot to 160 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health. B(a)P equivalents exceeded the CSL at one location, as shown in Table 3-22c.

B(a)P equivalents were detected exceeding the CSL (2,100 µg/kg) in 1 sample between depths 0 foot and 0.5 foot bgs at location at SD-31 at a concentration of 2,300 µg/kg (Table 3-23c). A sample from location SD-31 was collected on the slope to the west of AOC 6 along a former drain line (Figure 3-14n). There were no exceedances of CSLs in the samples collected during the groundwater remedy construction (Table F-1c).

The lateral and vertical extents of exceedances have been defined by samples with results not detected exceeding reporting limits or the CSL.

TPH: Samples were collected from 114 locations at depths ranging from 0 foot to 160 feet bgs. The CSL for TPH-d and TPH-mo were exceeded at 1 or more locations across AOC 13, as shown in Table 3-23e. Exceedances are described as follows:

- TPH-mo was detected exceeding its CSL (140,000 mg/kg) at 1 location, Spill4232006_Sam at 0 foot bgs, with a concentration of 240,000 mg/kg (Table 3-23e). A sample from location Spill4234006_Sam was collected in a gravel area, east of AOC 25 – Compressor and Generator Engine Basement.
- TPH-d was detected exceeding its CSL (1,100 mg/kg) at 4 locations between depths 0 foot and 4.5 feet bgs (Table 3-23e). The greatest TPH-d concentration of 8,500 mg/kg was detected at sample location SD-OS42 at 3 feet to 4 feet bgs from debris within a storm drain line and represents material removed during repair of the storm drain. A sample from location SD-OS42 was collected in a gravel area north of AOC 5 – Cooling Tower A. There were no exceedances of CSLs in the samples collected during the groundwater remedy construction (Table F-1d).

The lateral and vertical extents of the exceedances for all analytes have been defined by samples with results not detected exceeding reporting limits or less than the CSLs.

VOCs and SVOCs: Samples were collected at 74 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-23d).

Acetone was detected less than the CSL in 4 samples evaluated as a part of AOC 13. Two sample locations (AOC13-10 and SD-OS42) were located immediately west of the AOC 25 Compressor Building. Two sample locations (PGE-UTOS2 and AOC13-PITOS11) were located near AOC 26, west of the AOC 25 Compressor Building. Acetone is a frequently detected laboratory contaminant. However, it is also possible that acetone detections are related to solvents used to clean mechanical equipment near AOC 25 and AOC 26.

General Chemistry: The only general chemistry parameter with a CSL is fluoride, and no samples had detected results that exceeded their respective CSLs (Table 3-23f).

Pesticides: Samples were collected from 17 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-23g).

PCBs: Samples were collected from 86 locations at depths ranging from 0 foot to 160 feet bgs. The CSLs for Aroclor 1254 and total PCBs were exceeded at multiple locations across AOC 13, as shown in Table 3-23h. Exceedances are described as follows:

- Aroclor 1254 was detected exceeding its CSL (970 µg/kg) at 5 locations between depths 0 foot and 4 feet bgs (Table 3-23h). The greatest Aroclor 1254 concentration of 2,600 J (estimated) µg/kg was detected at sample location AOC13-33 at the surface to 0.5 foot bgs. A sample from location AOC13-33 was collected on the slope to the west of AOC 6.
- Total PCBs were detected exceeding the CSL (940 µg/kg) at 6 locations between 0 foot and 4 feet bgs (Table 3-23h). The greatest Total PCB concentration of 3,537 µg/kg was detected at sample location AOC 13-33. A sample from location AOC13-33 was collected on the slope to the west of

AOC 6. There were no exceedances of CSLs in the samples collected during the groundwater remedy construction (Table F-1g).

The lateral extent of the exceedances has not been defined for PCBs by samples with results less than BK levels, or not detected exceeding reporting limits along the slope in the northwestern corner of the TCS between AOC 6 and the lower yard (that is, sample locations AOC13-33 and SD-31). The vertical extent of exceedances has been defined by samples less than CSLs or not detected exceeding reporting limits.

Dioxins and Furans: Samples were collected from 29 locations at depths ranging from 0 foot to 4.5 feet bgs (Table 3-23i). Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSL for TEQ human was exceeded at multiple locations across AOC 13, as shown in Table 3-23i.

TEQ human was detected exceeding its CSL (220 ng/kg) at 4 locations between 0 foot and 3 feet bgs (Table 3-23i). The greatest TEQ human concentration of 2,200 ng/kg was detected at sample location AOC13-33 at the surface to 0.5 foot bgs. A sample from location AOC13-33 was collected on the slope to the west of AOC 6 (Figure 3-14o). There were no exceedances of CSLs in the sample collected during the groundwater remedy construction (Table F-1h).

The lateral extent of exceedances has been defined by samples with results not detected exceeding reporting limits or the CSL, except at sample locations AOC13-30 and AOC13-33. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

The vertical extent of exceedances has been defined by samples with results not detected exceeding reporting limits or the CSL, except at sample location AOC13-33. Additional sampling to address this data gap shall be considered for inclusion in the CMS/FS.

Debris and Waste Samples

Debris and waste samples were collected at AOC 13 and analyzed for the following analytes:

- Metals
- PAHs
- VOCs
- SVOCs
- General chemistry
- PCBs
- Dioxins and furans

Tables 3-23a through 3-23j provide the results. Samples were collected on the slope between AOC 6 and the lower yard.

Metals: Three debris samples were analyzed for metals: AOC13-33, AOC13-Debris, and AOC13-Wood, as shown in Table 3-23a. Metals concentrations in these samples exceeded BK in all 3 samples for the following analytes:

- CrT (39.8 mg/kg)
- Copper (16.8 mg/kg)
- Lead (8.39 mg/kg)
- Zinc (58 mg/kg)

AOC13-Debris and AOC13-Wood had detected CrT exceeding TTLC hazardous waste limits. BK was exceeded in 2 of the samples for the following analytes:

- Arsenic (11 mg/kg)

- CrVI (0.83 mg/kg)
- Molybdenum (1.37 mg/kg)

The CSL was exceeded for CrVI (6.3 mg/kg) in 1 sample (AOC13-Debris).

PAHs: Six debris samples were analyzed for PAHs, as shown in Table 3-23c. B(a)P equivalents exceeded BK (55 µg/kg) in 4 of the 5 samples, and the B(a)P equivalent CSL (2,100 µg/kg) was exceeded at 1 location. The greatest PAH concentration was measured at AOC13-Debris (2,600 µg/kg).

VOCs and SVOCs: Four debris samples were analyzed for VOCs and SVOCs. All results were nondetect, as shown in Table 3-23d.

PCBs: Six debris samples were analyzed for PCBs, as shown in Table 3-23h. Results were nondetect or did not exceed the CSLs for 5 of the 6 samples. The CSL was exceeded for the following analytes in sample AOC13-Debris:

- Aroclor 1254 (970 µg/kg)
- Aroclor 1260 (990 µg/kg)
- total PCBs (940 µg/kg)

The FOEs ranged from 1.2 to 4, depending on the chemical.

Dioxins and Furans: Five debris samples were analyzed for dioxins and furans, as shown in Table 3-23i. Results were nondetect or did not exceed CSLs for 3 samples. The TEQ human CSL (220 ng/kg) was exceeded by 2 samples: AOC13-Asphalt2 and AOC13-Debris, with AOC13-Debris having a much greater concentration (56,000 ng/kg) than AOC13-Asphalt2 (460 ng/kg).

Exceedances are described as follows:

- Concentrations in debris samples were less than or comparable to some of the greatest concentrations in soil samples, except for CrT, copper, and TEQ human, which had measurably greater concentrations in a debris sample than in the soil samples from AOC 13.
- The concentration of TEQ human in AOC13-Debris was 56,000 ng/kg, and the greatest concentration in soil was 2,200 ng/kg.
- The concentration of CrT in AOC13-Debris was 3,800 mg/kg, and the greatest concentration in soil was 780 mg/kg.
- The concentration of copper in AOC13-Wood was 2,400 mg/kg, and the greatest concentration in soil was 830 mg/kg.
- Soil samples collected near debris samples (AOC13-33 and SD-31, PA-02) were generally high in the following analytes:
  - CrT
  - Copper
  - Dioxins and furans

Impacted debris material on slopes within and around the TCS should be removed. Debris removal is recommended to be carried forward into the CMS/FS.

Soil Gas Investigation

In addition to the soil and debris samples discussed previously, soil gas vapor probes were installed at locations AOC13-5, AOC13-6, and AOC13-11 to assess AOC 25 (Compressor and Generator Engine Basements), and at location AOC13-16 to assess AOC 32 (Oil Storage Tanks and Waste Oil Sump), where soil sampling was not feasible. Appendix B, Attachment B7 provide installation and sampling details. Soil gas samples were collected from 2 feet to 3 feet bgs. Soil gas samples were collected from each of these locations in January 2016 and February 2017. Table 3-23k provides results, which are summarized as follows:

- Results from the January 2016 sampling event: Three analytes (acetone, methyl ethyl ketone [MEK], and toluene) were detected at low concentrations. Acetone and MEK are frequently detected lab contaminants. Acetone detections may also be related to solvent use for equipment maintenance and cleaning at the TCS. The greatest detected toluene concentration was 16 micrograms per cubic meter ($\mu g/m^3$).
- Results from the February 2017 sampling event: The following analytes were detected at low concentrations:
  - Acetone
  - Carbon disulfide
  - Chloroform
  - MEK
  - Methylene chloride
  - Tetrachloroethene (PCE)

Acetone, MEK, and methylene chloride are frequently detected lab contaminants. The source of the low-level PCE detection is unknown, but may be related to solvent use for equipment maintenance and cleaning. Acetone detections may also be related to solvent use. Toluene was not detected exceeding laboratory reporting limits.

No data gaps were identified for soil gas.

4.2.10.5 AOC 13 Conceptual Site Model

Exhibit 4-24 presents the following information for AOC 13:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b), and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination at AOC 13 are likely to be historical incidental spills or spraying of lubricants and pipeline liquids, cooling water, and wastewater. The use of oil as a dust suppressant is also a potential source of COPCs. The presence of CrVI, CrT, and molybdenum is likely related to releases of cooling water.

The presence of the following analytes is likely related to historical and incidental spills:

- Wear metals:
  - Zinc
  - Copper
  - Nickel
  - Lead

- PAHs
- TPH
- PCBs

The spraying of lubricants may also have contributed to PAH and TPH contamination. The quantity of liquid released to unpaved areas of the TCS is unknown; however, overflows from some of the equipment on the TCS are known to have occurred in the past. While spills that occurred in recent years have been cleaned up, no information is available regarding the cleanups of historical spills.

The greatest concentrations of CrVI and CrT are in the vicinity of AOC 19 (former cooling liquids mixing and JCW hotwell) and AOC 15 (AJCW pumps). Elevated CrVI and CrT concentrations in soil are also found along the slope between AOC 6 (cooling tower) and the lower yard, and along storm drain line SDL-3. The presence of chromium at these locations is consistent with known or potential releases of cooling water.

Runoff containing wear metals may contribute to the elevated concentrations of these metals detected along storm drain lines (for example, SDL-6, SDL-5, and SDL-3) and on the slope between AOC 6 and the lower yard. The greatest concentrations of PAHs, PCBs, and dioxins and furans were also detected on the slope between AOC 6 and the lower yard.

The primary source medium at AOC 13 is surface soil. Because areas comprising AOC 13 either are or historically were unpaved, liquids released in AOC 13 would have been released to surface soil and would have infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils. The soil analytical results for AOC 13 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time. During high rainfall events, chemicals contained in currently unpaved portions of AOC 13 could also reach the storm drain system or run off in sheet flow. Constituents that may have been released to the storm drain system are addressed by the storm drain investigation program described in Section 4.3.

COPCs in surface soil in unpaved areas may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 13, this migration may result in COPCs near the TCS fence line (for example, on the slope between AOC 6 and the lower yard) and on steep slopes (for example, on the slope between AOC 5 and the lower yard) migrating outside the compressor station fence line into investigation units, such as:

- AOC 1 and SWMU 1
- AOC 4
- AOC 9
- AOC 10
- AOC 11

Releases to areas outside the fence line are addressed by the Perimeter Area investigation (Section 4.4).

Exhibit 4-24. Conceptual Site Model – AOC 13
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PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental spills of lubricants and pipeline liquids, cooling and wastewater, and use of oil as a dust suppressant **COPCs include:** • Metals • PCBs • PAHs • TPH • VOCs	• Surface soil	• Percolation • Infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals
Disposal of debris **COPCs include:** • Metals • PAHs • PCBs • Dioxins and furans	• Surface soil	• Percolation • Infiltration • Potential entrainment in stormwater and surface water runoff	• Surface soil • Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[a]	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

[a] Enclosed space accumulation refers to any area where vapor can accumulate.

4.2.10.6 Evaluation of Data Against Data Quality Objectives for AOC 13

This section discusses the evaluation of data against DQOs for AOC 13.

Decision 1 (Nature and Extent Determination): Nature and extent have not been sufficiently defined laterally or vertically for the following analytes and associated areas:

- Lateral extent of dioxins and furans, PCBs, and multiple metals along the slope between AOC 6 and the lower yard, including:
  - CrVI
  - CrT
  - Copper
  - Lead
  - Zinc
- Vertical extent of the following analytes along the slope between AOC 6 and the lower yard (AOC13-33):
  - Dioxins and furans
  - CrVI
  - Lead
- Vertical extent of the following analytes in the vicinity of storm drain line SDL-3:
  - Cadmium
  - CrVI
  - CrT
  - Copper
  - Lead
  - Zinc

  Opportunistic samples were collected in this area during maintenance and construction activities; therefore, deeper samples could not be collected.
- Vertical extent of the following analytes at sample locations SD-OS38 and SD-OS41:
  - CrVI
  - CrT
  - Molybdenum

  These opportunistic samples were collected during maintenance and construction activities; therefore, deeper samples could not be collected.
- Vertical extent of molybdenum at sample location BH-67.
- Vertical extent of copper at the southwestern corner of the TCS at the following sample locations:
  - PGE-LTE-OS5
  - PGE-LTE-OS6
  - PGE-LTE-OS8
  - PGE-LT-OS9
  - AOC13-OS2
  - AOC13-OS4

  These opportunistic samples were collected during maintenance and construction activities; therefore, deeper samples could not be collected.
- Vertical extent of the following analytes at sample location PA-OS3:
  - CrT
  - Nickel
  - Vanadium

This opportunistic sample was collected during maintenance and construction activities; therefore, deeper samples could not be collected.

- Vertical extent of metals on the slope below AOC 5 at the following sample locations:
  - BGCS-4: Zinc
  - BGCS-3: Zinc
  - BGCS-2:
    - Antimony
    - Cadmium
    - Lead
  - AOC13-27: Lead

Areas and sample locations in AOC 13 with data gaps shall be considered for inclusion in the CMS/FS.

Tables 3-23a through 3-23i and Figures 3-14a through 3-14o provide analytical results. Table 3-23j provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 403 samples were collected from 147 locations at depths ranging from 0 foot to 160 feet bgs for AOC 13. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 13 may pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 13 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs

- VOCs
- SVOCs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provides the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the analytes and equivalency factors described in this subsection.

Several metals were detected at concentrations exceeding ISLs:

- Antimony
- Cadmium
- CrVI
- CrT
- Copper
- Lead
- Mercury
- Molybdenum
- Zinc

The greatest FOE was for zinc, which was detected at a concentration exceeding the ISL (BK) of 58 mg/kg at 7 of 27 locations, with a maximum concentration of 1,000 mg/kg at SD-24. Other exceedances are described as follows:

- Cyanide was detected at a concentration exceeding the ISL (ECV) of 0.9 mg/kg at 1 of 3 locations (AOC13-PITOS9) at a concentration of 1 mg/kg.
- B(a)P equivalent exceeded the ISL (RRSL) of 110 µg/kg at 4 of 27 locations, with a maximum concentration of 2,300 µg/kg at SD-31. HMW PAH also exceeded the ISL (ECV) of 1,160 µg/kg at 3 of 27 locations, with a maximum concentration of 18,670 µg/kg at SD-31.
- Total PCBs exceeded the ISL (ECV) of 204 µg/kg at 6 of 25 locations, with a maximum concentration of 3,537 µg/kg at AOC 13-33. Aroclor 1254 and Aroclor 1260 also exceeded their respective ISLs (RRSL) at 5 of 25 and 2 of 25 locations, respectively.
- TEQ avian exceeded the ISL (ECV) of 16 ng/kg at 5 of 11 locations, with a maximum concentration of 1,500 ng/kg at AOC 13-33.
- TEQ human exceeded the ISL (DTSC-SL) of 50 ng/kg at 5 of 11 locations, with a maximum concentration of 2,200 ng/kg at AOC 13-33.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 9 of 11 locations, with a maximum concentration of 2,200 ng/kg at AOC 13-33.

Table 3-39j provides a summary of the greatest exceedances, and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within AOC 13 have the potential to migrate outside the fence line.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. One or more samples exceeded the ISLs for the following analytes and equivalency factors:

- The following analytes were detected in one or more samples at concentrations exceeding ISLs:
  - Cadmium
  - CrVI
  - CrT
  - Copper
  - Lead
  - Nickel
  - Vanadium
  - Zinc

  The greatest FOE was for lead which exceeded the ISL (BK) of 8.39 mg/kg at 3 of 16 locations with a maximum concentration of 190 mg/kg at SD-07.
- B(a)P equivalents exceeded the ISL (RRSL) of 110 µg/kg at 1 of 16 locations, with a concentration of 190 µg/kg at SD-31.
- Total PCBs exceeded the ISL (ECV) of 204 µg/kg at 2 out of 14 locations, with a maximum concentration of 1,637 µg/kg at SD-31.
- TEQ avian exceeded the ISL (ECV) of 16 ng/kg at 2 of 4 locations, with a maximum concentration of 510 ng/kg at AOC13-33.
- TEQ human exceeded the ISL (DTSC-SL) of 50 ng/kg at 2 of 4 locations, with a maximum concentration of 510 ng/kg at AOC13-33.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 3 of 4 locations, with a maximum concentration of 510 ng/kg at AOC13-33.

Potential migration of contamination at depth from AOC 16 may be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 13 were collected at AOC13-30. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

Additional Considerations: It is recommend that removal and disposal of surficial debris material on slope between lower and upper yard be carried forward to the CMS/FS.

4.2.11 AOC 15 – Auxiliary Jacket Cooling Water Pumps

This section provides details about AOC 15 – AJCW Pumps.

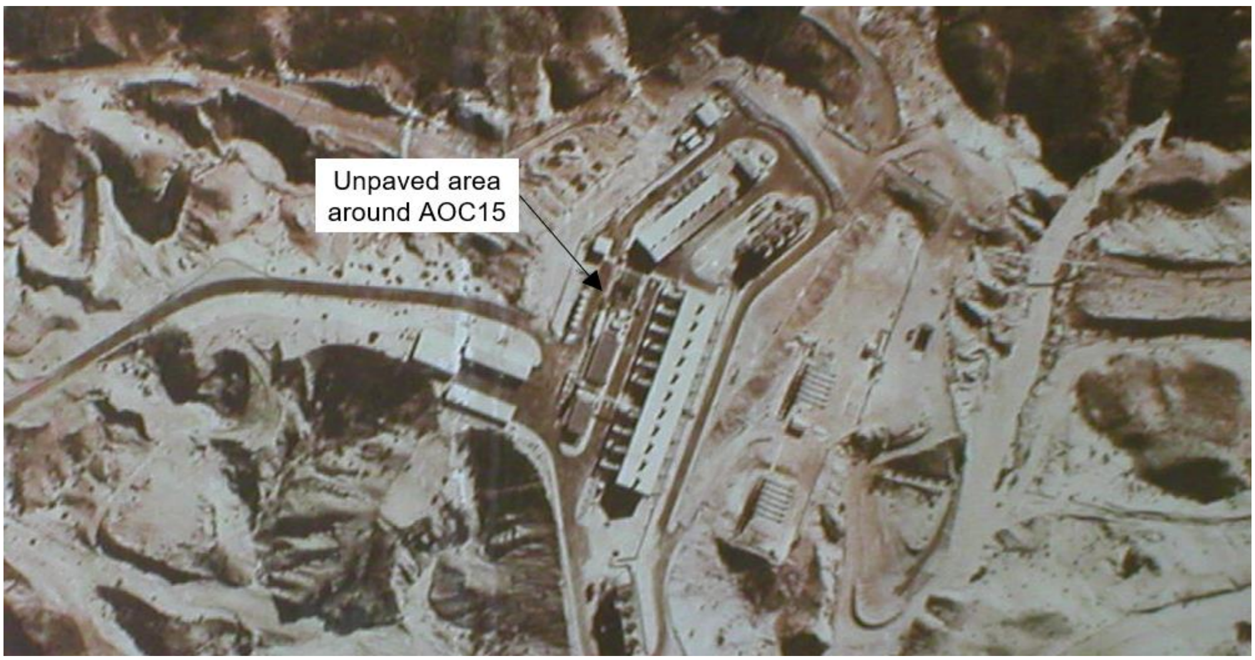
4.2.11.1 Setting

AOC 15 consists of the AJCW pumps located north of the Auxiliary Building, as shown on Figure 2-2. AOC 15 is part of the closed-loop cooling system for the generator engines. The pumps are used to circulate the cooling water through the system. Incidental leaks and spills from valve seals and pumps have occurred and resulted in impacts to the soil beneath the pumps.

4.2.11.2 Unit History

The AJCW system was subject to occasional leaks because of failure of pump and valve seals. Two employees indicated that in the past, leaks from the AJCW entered a pipe trench in the road near the AJCW system (Russell, pers. comm. 2006c). The trench led to a storm drain that discharged in the area of AOC 9.

AJCW leaks of chromium-containing water released to the trench drain could be released to AOC 9 and then flow into the East Ravine. The ground surface in the immediate vicinity of the pumps was unpaved but covered with gravel; the area outside the containment berm is paved. There is currently no exposed soil in this area; however, the area immediately adjacent to the AJCW system was historically unpaved. Aerial photos from 1967 and earlier indicate that the area was unpaved (Photograph 4.2.11-1). Intervening aerial photographs do not provide sufficient resolution to determine when the area was first paved.



Photograph 4.2.11-1: 1967 Aerial Photograph 1, Topock Compressor Station Area.
Note: Stereoscopic review of photograph shows unpaved area around AOC 15.

Chromium-based cooling water additives were used in this system from 1951 through 1985. In 1985, this system was converted to using nonhazardous, molybdate-based cooling water additives. Incidental leaks and spills have occurred and may have resulted in impacts to the soil beneath the pumps. Historical information indicates that concentrations of molybdenum as molybdate (MoO_4) typically ranged from 300 to 800 parts per million (ppm) (Betz 1987, 1989, 1990, 1991).

In August 2020, as part of a TCS upgrade project, the entire AOC 15 area was excavated. The purpose of the project was to replace the AJCW cooler and appurtenances. Approximately 280 tons of excavated soil and concrete was removed and disposed of. Ten confirmation samples were collected from the bottom of the excavations, as shown on Photographs 4.2.11-2 and 4.2.11-3. Excavation activities resulted in the removal of soil represented by many of the RFI/RI soil samples: the surface interval (0 foot to 0.5 foot bgs) in all samples except AOC15-7, and the entirety of the following sample locations:

- JP-8-3
- AOC15-OS2
- AOC15-2
- JP-2-3

- AOC15-6
- AOC15-3

The samples that represent soil that is no longer present are identified in the table as “Sample removed during excavation” in Tables 3-24a through 3-24f. The excavated area was backfilled with clean backfill and covered in concrete (Photograph 4.2.11-4).

Photograph 4.2.11-2: August 2020 Photograph of the Excavation in Progress at AOC 15
Note: Looking north.

Photograph 4.2.11-3: August 2020 Photograph of the Completed Excavation Area at AOC 15.
Note: Looking north.

Photograph 4.2.11-4: May 2021 Photograph of the Paved Area at AOC 15 After the 2020 Excavation.
Note: Looking east.

4.2.11.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 15 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 15 comprises a unit of sand with gravel to silty sand with gravel, with up to approximately 15% gravel up to 2 inches in diameter, 10% cobbles, and 75% silt and sand. Lithology was recorded to a maximum depth of 14.5 feet bgs at AOC 15.

Staining observed in samples collected at AOC 15, and associated contamination was at boring location AOC15-1, where a dark layer of soil was observed from approximately 0.1 foot to 0.3 foot bgs. CrVI exceeded the CSL in a sample collected from 0 foot to 0.5 foot bgs at AOC15-1.

4.2.11.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-24a through 3-24g provide analytical results for AOC 15, and Figures 3-15a through 3-15g show sampling locations.

This section provides a discussion about the screening level exceedances. Section 4.2.11.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Only samples that remained in place after the 2020 excavation are included in the analytical results discussion.

Metals: Soil samples were collected from 16 locations at depths from 0.5 foot to 15 feet bgs. The CSLs were exceeded for CrVI and lead at one or more locations across AOC15, as shown in Table 3-24a. BK concentrations were exceeded for the following analytes, as shown in Table 3-24a:

- CrVI was detected exceeding its CSL (6.3 mg/kg) in 5 samples between depths 0.5 foot and 3 feet bgs (Table 3-24a) and its BK value (0.83 mg/kg) at 21 samples between depths 0.5 foot and 15 feet bgs. The greatest CrVI concentration of 65 mg/kg was detected at sample location AOC15-OS8 at 0.5 foot to 1 foot bgs. A sample from location AOC15-OS8 was collected at the bottom of the 2020 excavated area within the footprint of the former jacket coolers (Figure 3-15b). CrVI was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC15-OPP-OPBLDG at 2.3 mg/kg (Table F-1a).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 9 samples between depths 0.5 foot and 3 feet bgs (Table 3-24a). The greatest CrT concentration of 480 mg/kg was detected at sample location AOC15-OS1 at 2 feet to 3 feet bgs. A sample from location AOC15-OS1 was collected in a gravel area, near the northern boundary of the unit (Figure 3-15c). CrT was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC15-OPP-OPBLDG at 83 mg/kg (Table F-1a).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 5 samples between depths 0.5 foot and 3 feet bgs (Table 3-24a). The greatest copper concentration of 110 mg/kg was detected at sample location AOC15-OS8 at 0.5 foot to 1 foot bgs. A sample from location AOC15-OS8 was collected at the bottom of the 2020 excavated area within the footprint of the former jacket coolers (Figure 3-15d). Copper was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC15-OPP-OPBLDG at 34 mg/kg (Table F-1a).

- Lead was detected exceeding its BK value (8.39 mg/kg) in 11 samples between depths 0 foot and 5 feet bgs and exceeding its CSL (320 mg/kg) in 1 sample collected at 0.5 foot to 1 foot bgs (Table 3-24a). The greatest lead concentration of 580 mg/kg was detected at sample location AOC15-OS8 at 0.5 foot to 1 foot bgs. A sample from location AOC15-OS8 was collected at the bottom of the 2020 excavated area within the footprint of the former jacket coolers (Figure 3-15e). Lead was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC15-OPP-OPBLDG at 34 mg/kg (Table F-1a).
- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 20 samples between depths 0 foot and 15 feet bgs (Table 3-24a). The greatest molybdenum concentration of 450 mg/kg was detected at sample location AOC15-OS1 at 2 feet to 3 feet bgs. A sample from location AOC15-OS1 was collected in a gravel area, near the northern boundary of the unit (Figure 3-15f). Molybdenum was also detected exceeding the BK value in 1 sample collected from 1 foot to 2 feet bgs during the groundwater remedy construction: AOC15-OPP-OPBLDG at 2.8 mg/kg (Table F-1a).
- Zinc was detected exceeding its BK value (58 mg/kg) in 1 sample at 0.5 foot to 1 foot bgs (Table 3-24a). The greatest zinc concentration of 160 mg/kg was detected at sample location AOC15-OS8 at 0.5 foot to 1 foot bgs. A sample from location AOC15-OS8 was collected at the bottom of the 2020 excavated area within the footprint of the former jacket coolers (Figure 3-15g).

The lateral extent of the exceedances has not been defined by samples with results less than the BK levels or not detected exceeding reporting limits for the following analytes:

- CrVI
- CrT
- Copper
- Lead
- Molybdenum

The area around AOC 15 is bounded by buildings to the north and east, concrete and the Auxiliary Building to the south, and pavement to the west. Additionally, CrT, copper, lead, and molybdenum concentrations are less than RBCs. The area was recently excavated, backfilled, and covered in concrete. As such, the soil is no longer available to receptors; the data gaps do not present an unacceptable risk to receptors, and further investigation is not recommended.

The vertical extent of the exceedances has generally not been defined for the following analytes by samples with results less than the BK levels or not detected exceeding reporting limits:

- CrVI
- CrT
- Lead
- Molybdenum

However, for most locations and metals, the concentrations decrease with depth and do not exceed RBCs, and do not represent a data gap requiring further investigation. Concentrations at AOC15-1 increase with depth for molybdenum.

Digging or drilling deeper samples in these areas is not feasible because of underground utilities. Additionally, the area was recently excavated, backfilled, and covered in concrete. As such, the soil is no longer available to receptors; the data gaps do not present an unacceptable risk to receptors and further investigation is not recommended.

Two additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC15-001 and TCS-OPP-AOC15-002). There were no BK or CSL exceedances.

CLP Inorganics: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-24b).

PAHs: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-24c). There were no exceedances of CSLs in the sample collected during the groundwater remedy construction (Table F-1c).

TPH: TPH was not a COPC for this unit; therefore, samples were not analyzed for TPH. There were no exceedances of CSLs in the sample collected during the groundwater remedy construction (Table F-1d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected at 11 locations, and there are no applicable screening levels for the reported parameters (Table 3-24d).

Pesticides: Samples were collected at 1 location, and there were no detections of pesticides (Table 3-24e).

PCBs: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-24f). There were no exceedances of CSLs in the sample collected during the groundwater remedy construction (Table F-1g).

Dioxins and Furans: Dioxins and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans. There were no exceedances of CSLs in the sample collected during the groundwater remedy construction (Table F-1h).

4.2.11.5 AOC 15 Conceptual Site Model

Figure 4-19 is a graphical CSM developed for AOC 15 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-25 presents the following information for AOC 15:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M, 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 15 are likely to be historical liquid discharges (leaks) from the AJCW pumps and valves. The quantity of liquid released from the pumps and associated valves is unknown; however, periodic leaks are known to have occurred. If a large release from the pumps or valves occurred, it could have resulted in AJCW reaching the storm drain system. Releases from the storm drain system are addressed by the storm drain investigation program described in Section 4.3. In addition, any liquids released to surface soil immediately adjacent to the unit could have affected surface soil and migrated to shallow soil.

The presence of CrVI, CrT, and molybdenum at AOC 15 is likely related to releases of cooling water. The presence of wear metals (copper, lead, and zinc) is likely related to runoff from the surrounding TCS roads and facilities.

The primary source medium at AOC 15 is surface soil. Because the entire AOC is covered with concrete, there is no direct contact or surface migration pathway for this AOC.

Exhibit 4-25. Conceptual Site Model – AOC 15
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Incidental spills and releases around AJCW pumps **COPCs include:** • Metals	• Surface soil	• Percolation • Infiltration • Potential entrainment in historical stormwater and surface water runoff (area now completely covered in concrete)	• Subsurface soil	• Wind erosion and atmospheric dispersion of historical surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker
Runoff from the surrounding TCS roads and facilities **COPCs include:** • Metals	• Surface soil	• Percolation • Infiltration • Potential entrainment in historical stormwater and surface water runoff (area now completely covered in concrete)	• Subsurface soil	• Wind erosion and atmospheric dispersion of historical surface soil • Potential volatilization and atmospheric dispersion	

4.2.11.6 Evaluation of Data Against Data Quality Objectives for AOC 15

This section discusses the evaluation of data against DQOs for AOC 15.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results, current data density, and Site conditions.

Tables 3-24a through 3-24f and Figures 3-15a through 3-15g provide analytical results. Table 3-24g provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 44 samples were collected from 20 locations at depths ranging from 0 foot to 15 feet bgs for AOC 15. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- General chemistry
- Pesticides
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 15 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are paved. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 15 were collected at AOC15-3. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.12 AOC 16 – Former Sandblast Shelter

This section provides details about AOC 16 – Former Sandblast Shelter.

4.2.12.1 Setting

AOC 16, the Former Sandblast Shelter, is located in the lower yard west of the TCS, as shown on Figure 2-2. The sandblast shelter is constructed of four supports and a roof with open sides. The area immediately surrounding the shelter is currently and has historically been unpaved, except for the concrete driveway between the eastern edge of the shelter and the paved roadway.

4.2.12.2 Unit History

The sandblast shelter was installed in the late 1980s and was used to prepare metal items at the facility for protective coating (CH2M 2007a). Some sandblasting historically occurred in this area before the sandblast shelter was constructed. The shelter in its current configuration was used by PG&E until the early 1990s. At that time, regulatory requirements for sandblasting changed. PG&E ceased using the sandblast shelter for sandblasting and hired contractors to do sandblasting of smaller items. Sandblasting work is now primarily conducted offsite. For any work done onsite, contractors are required to implement best management practices (BMPs) to contain sandblast material. No changes to plant operations are required to minimize future risks associated with current sandblasting activities at AOC 16.

4.2.12.3 Lithology Description

The soil at the TCS project area is generally comprised of alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 16 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 16 comprises silty sand with gravel with approximately 20 to 30% gravel and cobbles up to 4 inches in diameter, 40 to 50% fine to medium sand, and 30% silt. Lithology was recorded to a maximum depth of 3 feet bgs at AOC 16.

Debris observed in samples collected at AOC 16, and associated contamination, include iron debris that was observed in the upper 0.5 foot at boring location AOC16-5. The following analytes exceeded the CSL in a sample collected from 0 foot to 0.5 foot bgs at AOC16-5:

- Cadmium
- Copper
- Lead
- Mercury

4.2.12.4 Field Observations

During Site walks with DTSC, two different colors of apparent abrasive material were noted on the ground in the immediate vicinity of the sandblast shelter. Sandblasting operators bring abrasive materials onsite and are specified to meet standards associated with the air permit for sandblasting activities. Two types of sandblast material typically have been used at AOC 16 in the past several years: KleenBlast and Monterey 30 Mesh sand.

KleenBlast comprises mostly the following compounds:

- Iron oxide
- Silicon dioxide
- Silica
- Alumina
- Calcium
- 5.9% of other trace metals and oxides

Monterey sand is primarily (99%) silica sand.

Historically, lead-based paint or paint containing more of other heavy metals may have been used at the TCS and may be present in sandblast residue. Dark material mixed with sand, which was identified on the western side of the sandblast shelter as possible abrasive material (sandblast grit), may also be coke breeze (granular carbon material used to fill the cathodic protection anodes at the TCS).

4.2.12.5 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-25a through 3-25f provide analytical results for AOC 16, and Figures 3-10a through 3-10h show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.12.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from up to 7 locations between 0 foot and 3 feet bgs. No samples exceeded the CSLs within AOC 16. The BK concentrations were exceeded for the following analytes:

- Arsenic
- Cadmium
- Cobalt
- Copper
- Lead
- Molybdenum
- Zinc

These analytes were exceeded at the following locations (Table 3-25a):

- AOC16-2
- AOC16-3
- AOC16-5
- AOC16-grit
- AOC2A

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The analytes most frequently detected exceeding the BK levels were as follows:

- Copper was detected exceeding its BK value (16.8 mg/kg) in 5 samples between depths 0 foot and 3 feet bgs (Table 3-25a). The greatest copper concentration of 1,500 mg/kg was detected at sample location AOC16-grit at to 0.5 foot bgs. A sample from location AOC16-grit was collected from sandblast grit material to the west of the sandblast shelter.

- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 3 samples between depths 0 foot and 0.5 foot bgs (Table 3-25a). The greatest molybdenum concentration of 79 mg/kg was detected at sample location AOC16-grit at the surface to 0.5 foot bgs. A sample from location AOC16-grit was collected from sandblast grit material to the west of the sandblast shelter.

- Zinc was detected exceeding its BK value (58 mg/kg) in 3 samples between depths 0 foot and 0.5 foot bgs (Table 3-25a). The greatest zinc concentration of 377 mg/kg was detected at sample location AOC 2A at 0.4 foot bgs. A sample from location AOC 2A was collected southwest of the sandblast shelter (Figure 3-10f).

The lateral and vertical extents of the exceedances have been defined by samples with results not detected exceeding reporting limits or less than respective CSL and BK values. The deepest samples at AOC16-1 and AOC16-2 had results that slightly exceeded the BK value for copper, with a FOE of 1.25 times the BK value for both samples. The copper concentration decreases with depth at AOC16-2. Although the copper concentration increases with depth at AOC16-1, the concentration in the deepest sample (21 mg/kg) is greater than 3 orders of magnitude less than the RBC (76,000 mg/kg) and is not considered a data gap requiring further investigation.

CLP Inorganics: Samples were collected from 1 location, and no samples had detected results that exceeded their respective BK levels (Table 3-25b).

PAHs: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-25c).

TPH: TPH was not a COPC for this unit; therefore, samples were not analyzed for TPH.

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected from 2 locations, and only pH was sampled for, which has no BK levels or CSLs (Table 3-25d).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-25e).

Dioxins and Furans: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-25f).

4.2.12.6 AOC 16 Conceptual Site Model

AOC 16 is included on the graphical CSM for AOC 1 and SWMU 1 (Figures 4-1b and 4-1c). Exhibit 4-26 presents the following information for AOC 16:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is discussed in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of metals contamination at AOC 16 are likely to be used sandblast grit and incidental spills of sandblasting materials. A potential secondary source of contamination is lead-based paint used at the shelter or on sandblasted materials. However, lead was only detected exceeding BK values in 1 sample (AOC16-grit). The quantity of used sandblast grit released in the area is unknown; however, sandblast grit was observed on the ground in the vicinity of the structure.

The primary source medium at AOC 16 is surface soil. The area around the structure is unpaved; therefore, contaminated sandblast grit spilled from the shelter would have been released to surface soil. Contaminants could have leached from surface soils into underlying soils. Contaminated sandblast grit could also have been carried off the TCS in sheet flow during high rainfall events. Surface runoff may have transported contaminants from AOC 16 to Bat Cave Wash. Windblown dust contamination from small particles of sandblast grit or contaminated surface soil around AOC 16 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils.

COPCs in surface soil in may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 16, this migration may result in COPCs in the lower yard migrating down the hillside into Bat Cave Wash and continuing down the flow path of Bat Cave Wash.

Exhibit 4-26. Conceptual Site Model – AOC 16
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental releases from the sand blasting area **COPCs include:** • Metals	• Surface soil	• Percolation • Infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.2.12.7 Evaluation of Data Against Data Quality Objectives for AOC 16

This section discusses the evaluation of data against DQOs for AOC 16.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-25a through 3-25g provide analytical results. Table 3-25h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 10 samples were collected from 7 locations at depths ranging from 0 foot to 3 feet bgs for AOC 16. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- General chemistry
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan and subsequent data gap investigations. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 16 may pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 16 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- General chemistry
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following analytes and equivalency factors.

Several metals were detected at concentrations exceeding ISLs:

- Arsenic
- Cadmium
- Cobalt
- Copper
- Lead
- Mercury
- Molybdenum
- Zinc

The greatest FOE was for copper, which was detected at a concentration exceeding the ISL (BK) of 16.8 mg/kg at 3 of 7 locations, with a maximum concentration of 1,500 mg/kg at AOC16-grit.

Table 3-39j summarizes the greatest exceedances, and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within AOC 16 have the potential to migrate outside the fence line. These areas in AOC 16 are included in the AOC 16 NTCRA TAA. AOC 16 data will be reevaluated after the NTCRA is complete.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. One sample exceeded the ISL (BK) and equivalency factors for copper of 16.8 mg/kg at 1 of 1 location, with a concentration of 21 mg/kg at AOC16-2.

Potential migration of contamination at depth from AOC 16 may be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 16 were collected at AOC16-3. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.13 AOC 17 – Onsite Septic System

This section provides details about AOC 17 – Onsite Septic System.

4.2.13.1 Setting

AOC 17 is the former onsite septic system that was connected to the Auxiliary Building and served the following areas:

- Auxiliary Building
- Technical Maintenance Building
- Weld Shop
- Garage
- Maintenance Shop

The septic system consisted of a septic tank and associated leachfield. The leachfield consisted of four leach lines, spaced 6 feet apart, and 100 feet long.

The TCS laboratory located in the Auxiliary Building also discharged into the septic system until 2008. The Auxiliary Building includes the following equipment and areas:

- Electric generators (P-Units)
- Air compressors
- Electric switchgear
- Battery Room
- Laboratory
- Mechanics' office
- Machine shop
- Locker room
- Crew lunchroom

Therefore, incidental releases of maintenance-type chemicals could also have entered the septic system.

In August 2018, the septic system was replaced. The existing septic tank was decommissioned in place by filling the tank with grout after being pumped dry. The former leach lines remain in place. A new septic tank and seepage pit was installed to the west of the existing leach field. The former Air Dryer Building was demolished, and a new Air Compressor Building was built partially on top of the former septic tank. Figures 4-20b and 4-20c, respectively, are drawings of the former and current systems.

AOC 33, the potential former burn area, is located mostly within the boundaries of AOC 17. AOC 33 is discussed in detail in Section 4.2.24 but is included in the CSM discussion with AOC 17 in Section 4.2.13.5.

4.2.13.2 Unit History

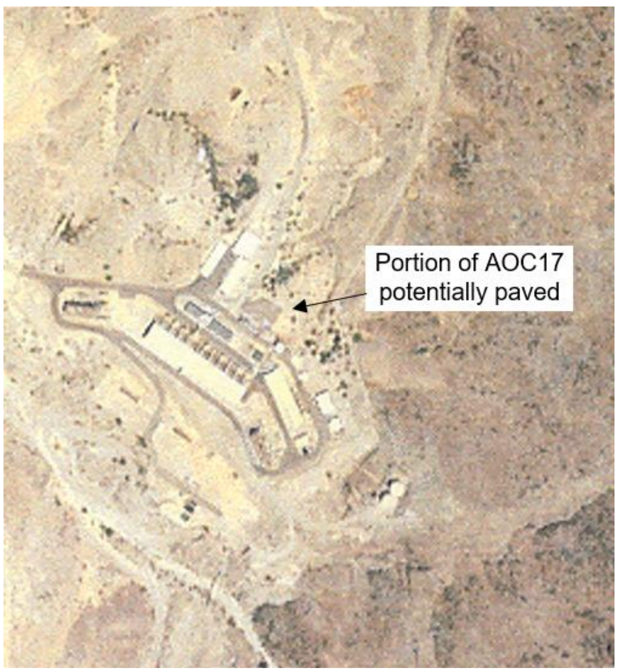
The septic system is believed to have been installed when the TCS was first constructed, at the same time as the Auxiliary Building, because locker room facilities were part of the original design for the Auxiliary Building (CH2M 2007a). Other nearby buildings were installed later: the Weld Shop and Garage in 1973 and the Technical Maintenance Building in the early 1990s.

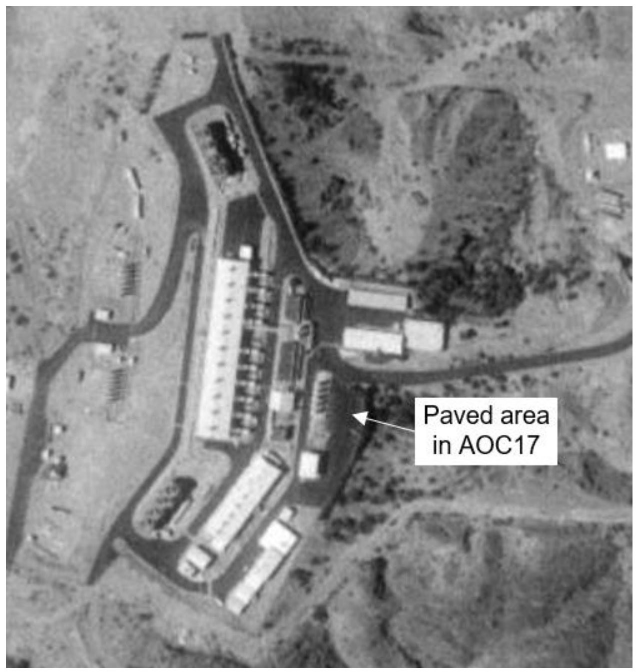
One of the sources of wastewater received by this septic system is the facility laboratory located in the Auxiliary Building. The plant cooling water was routinely sampled to monitor its chemical content and pH. Test chemicals consisted of indicator reagents, which were supplied by the cooling water treatment chemical company. Once the cooling water was tested, the laboratory waste (testing solutions and small amounts of cooling water) was discharged into the septic system. Approximately 1 pint per day of testing solutions and cooling water was disposed of into the septic system connected to the TCS laboratory. This practice ended in 2008.

A plaque mounted on the wall of the Air Dryer Building indicates that the southwestern corner of the septic tank is located 4 feet northeast of the Air Dryer Building and is buried 4 feet deep (Russell, pers. comm. 2006c). Drawing 481785 (Revision 22), located during a review of engineering drawings, shows the approximate location of the septic system (PG&E 1967). The previous locations of the septic tank and leach lines were based on a hand-sketched drawing and were slightly east of the position shown on the engineering drawing. The location of the leach lines and the boundary of AOC 17 have been adjusted to reflect the engineering drawing information.

Aerial photos from 1967 and earlier indicate that the area around the septic tank and leachfield was unpaved (Photograph 4.2.13-1). A review of an aerial photograph from 1983 indicates a portion of the AOC 17 area may have been paved at that time (Photograph 4.2.13-2). A 1994 aerial photograph shows AOC 17 as paved (Photograph 4.2.13-3).

Photograph 4.2.13-1: 1967 Aerial Photograph 1, View of the Topock Compressor Station
Note: Shows AOC 17 as unpaved.





Photograph 4.2.13-2 (left): 1983 Aerial Photograph of Topock Compressor Station
Note: Shows potentially paved areas in the vicinity of AOC 17.

Photograph 4.2.13-3 (right): 1994 Aerial Photograph of Topock Compressor Station
Note: Shows paved area in the vicinity of AOC 17.

4.2.13.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 17 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 17 comprises a homogeneous unit of medium-grained sand with trace gravel up to 3 inches in diameter. Lithology is recorded to a maximum depth of 10 feet bgs at AOC 17.

4.2.13.4 Geophysical Survey and Field Notes

A geophysical survey was conducted at AOC 17 to confirm the location of a septic tank and associated leach lines. The survey was conducted using GPR and metal detection. The proximity of metal structures precluded the use of total field magnetics analysis and terrain conductivity during this survey. Figure 4-20d and Attachment B6 provide results.

The septic tank and leach field location was identified during the geophysical survey. During sample collection near the leach line using vacuum excavation, the location of the leach line was visually confirmed at a depth of about 4 feet (Photograph 4.2.13-4). Soil boring logs for AOC 17 did not indicate the presence of any burn material (Attachment B1).

Photograph 4.2.13-4: December 2015 Photograph of Leach Lines Located Approximately 4 feet bgs.

4.2.13.5 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-26a through 3-26h provide analytical results for AOC 17, and Figures 3-14a through 3-14o show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.13.6 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 5 locations at depths from 0 foot to 10 feet bgs. No samples exceeded the CSLs within AOC 17. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The BK concentrations were exceeded for in the following analytes (Table 3-26a):

- Cadmium was detected exceeding its BK value (1.1 mg/kg) in 2 samples between 5 feet and 6 feet bgs (Table 3-26a). The greatest concentration of 2.3 mg/kg was detected at sample location AOC17-4 at 5 feet to 6 feet bgs. A sample from location AOC17-4 was collected in the northern portion of the septic leach field (Figure 3-14c).
- Lead was detected exceeding its BK value (8.39 mg/kg) in 3 samples between depths 0 foot and 1 foot bgs (Table 3-26a). The greatest lead concentration of 24 mg/kg was detected at sample location AOC17-5 at the surface to 1 foot bgs. A sample from location AOC17-5 was collected near the northern portion of the septic tank (Figure 3-14h).
- Zinc was detected exceeding its BK value (58 mg/kg) at one location (AOC17-3) between depths 5 feet and 6 feet bgs (Table 3-26a) at a concentration of 71 mg/kg. A sample from location AOC17-3 was collected in the central portion of the septic leach field (Figure 3-14m).

The lateral and vertical extents of the exceedances have been defined by samples with results less than BK concentrations or not detected exceeding reporting limits.

CLP Inorganics: Samples were collected from 1 location, and no samples had detected results that exceeded their respective BK levels (Table 3-26b).

PAHs: Samples were collected from 5 locations at depths ranging from 0 foot to 10 feet bgs. PAHs were evaluated by calculating B(a)P equivalents for human health. No samples exceeded the B(a)P equivalents CSL, as shown in Table 3-26c.

TPH: Samples were collected from 5 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-26e).

VOCs and SVOCs: Samples were collected from 5 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-26d).

General Chemistry: General chemistry parameters were not a COPC for this unit; therefore, samples were not analyzed for general chemistry parameters.

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 5 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-26f).

Dioxins and Furans: Samples were collected from 2 locations at depths ranging from 0 foot to 3 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. No samples had detected results that exceeded the CSL (Table 3-26g).

4.2.13.6 AOC 17 Conceptual Site Model

Figure 4-20a is a graphical CSM developed for AOC 17 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-27 presents the following information for AOC 17:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 17 are likely to be historical liquid discharges from the laboratory. The quantity of liquid released to the septic system is unknown. Weekly testing of plant cooling water would have resulted in the disposal of approximately 6.5 gallons of liquid per year, whereas daily testing would have resulted in the disposal of approximately 45.5 gallons of liquid per year (assuming approximately 1 pint of liquid waste per test event). In addition to the laboratory waste, the septic system received sanitary waste from the Auxiliary Building as well as the other buildings listed.

The primary source of contamination at AOC 33 is likely to have been diesel fuel that may have spilled from a modified drum that was used in potential fire training exercises and potential release of burn material.

The presence of lead exceeding the BK concentration in shallow (0-foot- to 1-foot-bgs) samples may be from runoff from nearby roads and buildings. The presence of cadmium and zinc exceeding BK concentrations at 5 feet to 6 feet bgs may indicate these compounds were released through the septic system, which likely discharged below 4 feet bgs.

The presence of TPH-d and TPH-mo may be from potential fire training exercises at AOC 33 or runoff from the surrounding roads and buildings. Dioxins and furans, as TEQ human, were not detected exceeding the BK concentration, indicating burned materials did not contribute to contamination in this area.

The primary source medium at AOC 17 is subsurface soil. The depth of the leach lines is approximately 4 feet bgs. The continuous release of liquids in AOC 17 would have possibly caused wastes to infiltrate to deeper soils. Because the liquids were discharged below the ground surface, and the entire area is currently paved, there are no surface migration pathways for this AOC.

The primary source medium at AOC 33 is surface soil and may also have included pavement if fire training activities occurred after the area was paved. The primary release mechanisms are direct releases of contaminated particulates or leaching of contaminants from potential fire training exercises in this area. Contaminants present in burned materials could have been deposited on surface soil as particulates or entered surface soil as dissolved constituents through infiltration of rainfall. However, analytical results for dioxins and furans and soil boring logs for AOC 17 (Attachment B1) do not support the presence of burned materials in this area.

Contaminants could have leached from surface soils and shallow soil into underlying deeper soils. Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway. Windblown dust contamination from contaminated surface soil within AOC 33 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils. Surface runoff from AOC 33 to the East Ravine could also have transported COPCs and COPECs in surface soil.

Exhibit 4-27. Conceptual Site Model – AOC 17
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PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Incidental releases from septic system **COPCs include:** • Metals	• Subsurface soil	• Percolation • Infiltration	• Subsurface soil	• None	**Human:** • Maintenance worker • Commercial worker
Potential burning during fire training activities **COPCs include:** • TPH	• Surface soil	• Percolation • Infiltration • Surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion	

4.2.13.7 Evaluation of Data Against Data Quality Objectives for AOC 17

This section discusses the evaluation of data against DQOs for AOC 17.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-26a through 3-26g provide analytical results. Table 3-26h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 19 samples were collected from 5 locations at depths ranging from 0 foot to 10 feet bgs for AOC 17. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 17 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are paved or otherwise covered with an impermeable surface. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS and IMs): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 17 were collected at AOC17-3. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.14 AOC 18 – Combined Wastewater Transference Pipelines

This section provides details about AOC 18 – Combined Wastewater Transference Pipelines.

4.2.14.1 Setting

AOC 18 consists of the hazardous waste transference pipelines associated with the former hazardous waste treatment system, including the pipelines conveying the cooling tower blowdown to the lower yard, as shown on Figure 2-2. These pipelines were used only to convey wastewater. Pipelines for stormwater and septic waste are separate systems. There is limited information regarding these pipelines, and no as-built drawings have been located.

4.2.14.2 Unit History

AOC 18 includes pipelines that were used to connect the cooling towers to the wastewater system (Figure 4-21):

- SWMU 1 Former Percolation Bed
- SWMU 2 Inactive Injection Well PGE-08
- SWMU 4 Sludge Drying Beds
- SWMU 5 Chromate Reduction Tank
- SWMU 7 Precipitation Tank
- SWMU 8 Process Pump Tank
- SWMU 9 Transfer Sump
- SWMU 10 Old Evaporation Ponds
- Unit 4.3 Oil/Water Holding Tank
- Unit4.4 (Oil/Water Separator)
- Unit 4.5 Portable Waste Oil Storage Tank

Table 4-1 provides details about the former waster transference pipelines (for example, connection, material, and associated samples) by pipeline segment.

Wastewater pipelines at the Site were made of the following materials (Mittelhauser 1986):

- Polyethylene
- PVC
- Aluminum
- Cast iron
- Vitrified clay

The hazardous waste management system and the related piping were closed in the late 1980s. Most of the piping was pressure-tested for leaks as part of the closure process, as described in the *Phase 1 and 2 Closure Certification Report Hazardous Waste Management Facilities* (Mittelhauser 1990b). Inaccessible and vitrified clay piping was not tested. All accessible pipes were visually inspected for leaks. Most of the wastewater pipelines passed within the limits of the test. Only one pipeline failed and was removed, along with most of the other inactive pipelines.

During removal of some pipes, there was visible staining below some sections of pipe. The interior of most of the pipelines had a visible green sludge, and they were disposed of as hazardous waste. Several sections of pipeline were not removed because of the following reasons:

- They were inaccessible.
- They were sufficiently decontaminated.
- They were still active.
- They were long and difficult to remove.

Pipeline segments left in place were portions of D-3, F-5, and G-1 and all of sections A-3, G-2, and G-3 (Figure 4-21). Portions of D-3 and F-5 were under a concrete pad and were capped and left in place. A portion of G-1 was encased in concrete and left in place. Sections A-3, G-2, and G-3 had been flushed continuously before decommissioning and were also left in place (Mittelhauser 1990a). Additionally, a portion of I-1 was beneath the OWS, so it was capped at both ends and left in place (Mittelhauser 1990b). There is no historical documentation of decontamination specifically for the pipe sections D-3, F-5, G-1, and I-1.

Visually contaminated soil was removed, confirmation sampling was conducted, and supplemental soil excavation was conducted where needed. The pipes that were removed as part of the closure operations are not part of the RFI process.

The original OWS (Unit 4.4), which was connected to the AOC 18 piping, was closed around 1990 (Mittelhauser 1990a). Characterization of leaks near the pipelines associated with Unit 4.4 was conducted. Piping was removed where accessible, but some sections of the pipe were capped and left in place.

4.2.14.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 18 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 18 comprises sand with gravel to silty sand with gravel, with up to approximately 30 to 40% gravel and cobbles and 60 to 70% silt and sand. At boring location AOC18-9, 100% cobbles and boulders were encountered at 2 feet bgs. Lithology was recorded to a maximum depth of 6 feet bgs at AOC 18.

4.2.14.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-27a through 3-27h provides analytical results for AOC 18, and Figures 3-10a through 3-10h show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.14.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 30 locations at depths ranging from 0 foot to 6 feet bgs. No samples exceeded the CSLs within AOC 18. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The BK concentrations were exceeded for the following analytes at locations across AOC 18, as shown in Table 3-27a:

- Beryllium
- CrVI
- CrT
- Lead
- Molybdenum
- Nickel
- Zinc

The analyte most frequently detected exceeding the BK levels was lead. Exceedances are described as follows:

- Lead was detected exceeding its BK value (8.39 mg/kg) in 15 samples between depths 0 foot and 6 feet bgs (Table 3-27a). The greatest lead concentration of 38 mg/kg was detected at sample location PH2. A sample from location PH2 was collected along a former combined wastewater conveyance line south of the SWMU 5 – Former Drying Beds (Figure 3-10e). PH2 was a confirmation sample collected along former wastewater transfer pipeline segment H after the removal of visibility contaminated soil during the closure process in 1988. PH2 was collected below a gate valve at an unknown depth, as described in Table 4-1.

- Zinc was detected exceeding its BK value (58 mg/kg) in 6 samples between depths of 1 foot and 5 feet bgs. The greatest zinc concentration of 210 mg/kg was detected at sample location PH2. A sample from location PH2 was collected along a former combined wastewater conveyance line south of the SWMU 5 – Former Drying Beds (Figure 3-10f). PH2 was a confirmation sample collected along former wastewater transfer pipeline segment H after the removal of visibility contaminated soil during the closure process in 1988. PH2 was collected below a gate valve at an unknown depth, as described in Table 4-1.

Three additional samples were collected as part of groundwater remedy implementation (AOC18-PLM-OPP-BLK, 1 foot to 2 feet and 2 feet to 3 feet bgs, and AOC18-PLM-OPP-NAV at 2 feet to 3 feet bgs). There were no exceedances of BK or CSLs. The lateral and vertical extents of the exceedances have been defined by samples with results less than BK levels or not detected exceeding reporting limits.

CLP Inorganics: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-27b).

PAHs: Samples were collected at 12 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-27c). Two additional samples were collected as part of groundwater remedy implementation (AOC18-PLM-OPP-BLK, 1 foot to 2 feet and 2 feet to 3 feet bgs). There were no exceedances of screening levels.

TPH: Samples were collected at 12 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-27d). Two additional samples were collected as part of groundwater remedy implementation (AOC18-PLM-OPP-BLK, 1 foot to 2 feet and 2 feet to 3 feet bgs). The sample collected from 1 foot to 2 feet bgs exceeded the CSL for TPH-d. The sample collected from 2 feet to 3 feet bgs was ND. Vertical extent of TPH is defined at AOC18-PLM-OPP-BLK.

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected at 30 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-27e).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected at 12 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-27f).

Dioxins and Furans: Samples were collected at 5 locations at depths ranging from 0 foot to 0.5 foot bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. No samples had detected results that exceeded their respective CSL (Table 3-27g).

4.2.14.5 AOC 18 Conceptual Site Model

A CSM has been developed for AOC 18 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-28 presents the following information for AOC 18:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

Exhibit 4-28. Conceptual Site Model – AOC 18

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PG&E Topock Compressor Station, Needles, California

<table>
<tr><th>Primary Source</th><th>Primary Source Media</th><th>Potential Release Mechanism</th><th>Secondary Source Media</th><th>Potential Secondary Release Mechanism</th><th>Potential Human and Ecological Receptors</th></tr>
<tr><td>Incidental releases from pipeline
COPCs include:
• Metals
• PAHs
• Dioxins and furans</td><td>• Subsurface soil</td><td>• Percolation
• Infiltration</td><td>• Subsurface soil</td><td>• None</td><td rowspan="2">**Human:**
• Maintenance worker
• Commercial worker
• Recreational user
• Tribal user
• Hypothetical future groundwater user
Ecological:
• Plants
• Invertebrates
• Birds
• Mammals</td></tr>
<tr><td>Incidental spills of lubricants and pipeline liquids, and cooling and wastewater
COPCs include:
• Metals
• PAHs
• Dioxins and furans</td><td>• Surface soil</td><td>• Percolation
• Infiltration
• Potential entrainment in stormwater and surface water runoff</td><td>• Subsurface soil</td><td>• Wind erosion and atmospheric dispersion of surface soil
• Potential volatilization and atmospheric dispersion</td></tr>
</table>

The primary source of contamination at AOC 18 is likely to be historical leaks from the wastewater pipelines. The presence of lead and zinc exceeding BK may be from lead-based paint and galvanized pipes.

The primary source medium at AOC 18 is subsurface soil, as releases from the pipeline would have occurred below ground surface. The surface above the pipelines is unpaved. Liquids released to surface soil, such as runoff from nearby buildings and roads or historical incidental spills, would have infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils.

4.2.14.6 Evaluation of Data Against Data Quality Objectives for AOC 18

This section discusses the evaluation of data against DQOs for AOC 18.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density, except in areas where pipelines were not accessible for investigation or left in place. Tables 3-27a through 3-27g and Figures 3-10a through 3-10h provide analytical results. Table 3-27h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 51 samples were collected from 30 locations at depths ranging from 0 foot to 6 feet bgs for AOC 18. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 18 may pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 18 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- PAHs

- VOCs
- SVOCs
- TPH
- General chemistry
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following analytes and equivalency factors:

- Two metals (lead and mercury) exceeded ISLs. Lead was detected at a concentration exceeding the ISL (BK) of 8.39 mg/kg at 2 of 8 locations, with a maximum concentration of 17 mg/kg at AOC18-11. Mercury was detected at a concentration exceeding the ISL (ECV) of 0.0125 mg/kg at 3 of 8 locations, with a maximum concentration of 0.24 mg/kg at AOC 18-9.
- B(a)P equivalent exceeded the ISL (RRSL) of 110 µg/kg at 4 of 8 locations, with a maximum concentration of 570 µg/kg at AOC18-9.
- TEQ avian exceeded the ISL (ECV) of 16 ng/kg at 2 of 4 locations, with a maximum concentration of 71 ng/kg at AOC18-1.
- TEQ human exceeded the ISL (DTSC-SL) of 50 ng/kg at 1 of 4 locations, with a maximum concentration of 160 ng/kg at AOC18-1.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 4 of 4 locations, with a maximum concentration of 160 ng/kg at AOC18-1.

Table 3-39j summarizes the greatest exceedances, and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within AOC 18 have the potential to migrate outside the fence line. Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. One sample collected from 2 feet to 3 feet bgs (AOC18-10) was compared to ISLs. There were no exceedances of ISLs. Potential migration of contamination at depth from AOC 20 does not appear to be a source of contamination to downgradient Part A investigation units.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples collected at SWMU 5 (a nearby unit) will be used to support characterization of AOC 18. Samples from SWMU 5 were collected at SWMU5-1. Table 3-38 presents results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.15 AOC 19 – Former Cooling Liquid Mixing and Hotwell Area

This section provides details about AOC 19 – Former Cooling Liquid Mixing and Hotwell Area.

4.2.15.1 Setting

AOC 19 is the Former Cooling Liquid Mixing and Hotwell Area located directly east of the Compressor Building, as shown on Figure 2-2 and Figures 4-22a through 4-22d. AOC 19 was initially defined as the concrete pad area associated with the former cooling additive mixing shed; however, subsequent information regarding potential leaks from the JCW system (Russell, pers. comm. 2006b) led to the inclusion of the adjacent pumps and tank area in AOC 19. The pad from the former shed currently exists in 2023 and is located adjacent to a smaller concrete pad that serves as a base for an exterior employee emergency safety shower. The JCW system cools the internal combustion compressor engines. The JCW system circulates water through the engine blocks and cylinder heads of each compressor unit. The heated water is then run through air-cooled heat exchanger units to dissipate the heat. The JCW system is a closed-loop system (that is, no water is added or lost from the system under normal operating conditions).

The JCW system originally was designed with a hotwell (a large, rectangular, concrete structure, partially below grade) that acted as a surge tank for the JCW system. The water was pumped from the hotwell into the heat exchangers. There was no overflow control system on the hotwell, and employees stated that it periodically overflowed. Occasional leaks also occurred from the hotwell, and from pump and valve seal failure. Cooling water containing chromium would flow onto the graveled area near the pumps. Larger leaks could sometimes result in releases onto the paved area between the JCW system and the visitor parking lot and warehouse, and then potentially down the main entrance road leading to the station or into East Ravine (Russell, pers. comm. 2006c).

Around 1967, the hotwell was abandoned in place and replaced with surge tanks (or JCW tanks), which still exist. In the early 1990s, a construction project began to provide secondary containment in the area. During construction, remnants of the old hotwell were discovered and removed (CH2M 2007a).

The hotwell was approximately 10 feet deep, with about half that height above ground. The area covered by the hotwell was about twice the area covered by the current concrete containment area for the JCW tanks. Figures 4-22e and 4-22f are engineering drawings of the hotwell.

The former cooling liquid mixing area consisted of a chemical additive shed, which no longer exists. Powdered coolant chemicals were mixed here, and then reportedly hand-added to the hotwell (Russell, pers. comm. 2006c). The former cooling liquid mixing area now consists of a small concrete pad. The area around the concrete pad is unpaved.

4.2.15.2 Unit History

Cooling water additives for this system were chromium-based until October 1985; since 1985, the additive package has been molybdate-based. Historical records (Betz 1987, 1989, 1990, 1991) indicate that concentrations of molybdenum as molybdate typically ranged from 300 to 800 ppm.

A cleanup project was conducted in the 1990s to remove the hotwell remnants. The remaining concrete and the soil contained in the hotwell were removed, and the concrete debris and soil were sampled. The soil samples contained CrT at 280 and 220 mg/kg, and CrVI at 4 and 3.6 mg/kg. The concrete sampled contained CrT at concentrations ranging from 530 to 2,300 mg/kg, and CrVI at concentrations ranging from 37 to 330 mg/kg (CH2M 2007a).

The two soil samples with the greatest CrT concentrations were analyzed for soluble CrT and CrVI with the California Waste Extraction Test (WET). The 2 samples were also tested for soluble CrT using the TCLP. Both samples exceed the soluble threshold limit concentration (STLC) criterion of 5 milligrams per liter (mg/L). The TCLP indicated soluble CrT at 40 and 68 mg/L. The WET indicated soluble CrT at 78 and 110 mg/L. The WET also indicated soluble CrVI concentrations were 64 and 80 mg/kg. No soil samples were collected under the hotwell (CH2M 2007a).

The chemical mixing additive shed was located between the JCW pumps, and tanks and hotwell. The concrete pad from the shed remains; it is adjacent to an eyewash station and emergency shower. Green droplets were noticed on the concrete pad during a routine test of a nearby eyewash fountain and safety shower in 2006. Elevated levels of chromium were found in the green water. The affected area was covered with Visqueen to minimize employee contact, and a wooden pad was installed over the pad to minimize human exposure and allow the safety shower to remain in operation. There are no plans to replace the temporary cover at this time. It is recommended that remedial options for surficial contamination be considered for inclusion in the CMS/FS.

4.2.15.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 19 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 19 primarily comprises a unit of 100% poorly graded, medium-grained sand. In the area of the former location of the hotwell, the soil comprises poorly graded sand with gravel, with approximately 20% gravel up to 2 inches in diameter and 80% sand. At boring location AOC19-9, approximately 100% cobbles with trace sand was encountered at 4 feet bgs. At boring AOC19-7, a layer of lean clay was encountered at approximately 2.7 feet bgs. Lithology is recorded to a maximum depth of 10 feet bgs at AOC 19. Figures 4-22b through 4-22d are cross sections showing lithology at AOC 19.

Debris observed in samples collected at AOC 19 was at AOC19-8, where metal debris was observed in the upper 0.5 foot of soil.

4.2.15.4 Analytical Results

Tables 3-28a through 3-28h provide analytical results for AOC 19, and Figures 3-16a through 3-16k show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.15.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Due to belowground and overhead utilities in the area, sample locations were limited to accessible areas around the footprint of the former hotwell. Nature and extent is discussed based on the limited sampling areas; however, the decision for DQO 1 is deferred until the currently inaccessible areas become available for sampling.

Metals: Soil samples were collected from up to 25 locations at depths ranging from 0 foot to 10 feet bgs. The CSLs were exceeded for the following analytes at one or more locations across AOC 19:

- Cadmium
- CrVI
- Lead
- Mercury

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The BK concentrations were also exceeded for the following analytes, as shown in Table 3-28a:

- Cadmium was detected exceeding its CSL (7.3 mg/kg) in 1 sample collected at location AOC19-14 between 0 foot and 0.5 foot bgs (Table 3-28a) and its BK value (1.1 mg/kg) in 10 samples collected between depths 0 foot and 0.5 foot bgs. The greatest cadmium concentration of 14 J (estimated) mg/kg was detected at sample location AOC19-14 at the surface to 0.5 foot bgs. A sample from location AOC19-14 was collected in a gravel area, northeast of AOC 19 (Figure 3-16b).
- CrVI was detected exceeding its CSL (6.3 mg/kg) in 11 samples collected between depths 0 foot and 3 feet bgs (Table 3-28a) and its BK value (0.83 mg/kg) at 26 locations between depths 0 foot and 10 feet bgs. The greatest CrVI concentration of 31 mg/kg was detected at sample location AOC19-OS7 at 2 feet to 3 feet bgs. A sample from location AOC19-OS7 was collected within the footprint of the former hotwell (Figure 3-16c).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 17 samples collected between depths 0 foot and 3 feet bgs (Table 3-28a). The greatest CrT concentration of 4,300 mg/kg was detected at sample location SS#6 at 0 foot bgs. A sample from location SS#6 was collected near a stained concrete pad (Figure 3-16d).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 15 samples collected between depths 0 foot and 3 feet bgs (Table 3-28a). The greatest copper concentration of 170 mg/kg was detected at sample location AOC19-10 at the surface to 0.5 foot bgs. A sample from location AOC19-10 was collected in a gravel area south of the former hotwell (Figure 3-16e).
- Lead was detected exceeding its CSL (320 mg/kg) in 5 surface soil samples collected at 0 foot bgs and its BK value (8.39 mg/kg) in 25 samples between depths 0 foot and 3 feet bgs (Table 3-28a). The greatest lead concentration of 890 mg/kg was detected at sample location SS#3 at 0 foot bgs. A sample from location SS#3 was collected around a stained concrete pad (Figure 3-16f).
- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 33 samples between depths 0 foot and 10 feet bgs (Table 3-28a). The greatest molybdenum concentration of 510 mg/kg was detected at sample location AOC19-11 at the surface to 1 foot bgs. A sample from location AOC19-11 was collected within the footprint of the former hotwell (Figure 3-16g).
- Zinc was detected exceeding its BK value (58 mg/kg) in 16 samples collected between depths 0 foot and 3 feet bgs (Table 3-28a). The greatest zinc concentration of 480 mg/kg was detected at sample location SS#3 at 0 foot bgs. A sample from location SS#3 was collected around a stained concrete pad (Figure 3-16h).

The lateral extent of the exceedances has not been defined by samples with results less than BK levels or not detected exceeding reporting limits:

- For CrVI and CrT, to the south and west of AOC 19
- For lead, to the north and west of AOC 19

The vertical extent of the exceedances has generally been defined by samples with results less than BK levels or not detected exceeding reporting limits. However, there are several locations where the deepest samples exceeded BK or CSLs. For several metals, this does not represent a data gap requiring further investigation because the concentrations exceeding BK are decreasing with depth or nearby deeper samples do not exceed BK.

The vertical extent of exceedances has not been defined at the following locations:

- For CrVI, at AOC19-OS7
- For CrT, at AOC 19-7 and AOC19-OS7
- For lead, at AOC19-5 and AOC19-7
- For mercury, at AOC19-5

- For molybdenum, at the following locations:
  - AOC19-7
  - AOC19-10
  - AOC19-11
  - AOC19-OS1
  - AOC19-OS2

Opportunistic samples (identified with "OS" in the sample name) were collected during maintenance and construction activities, and deeper samples were not collected at the time of construction.

Two additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC19-001 and AOC19-OPP-ORG-BOT-001). There were exceedances of BK in the duplicate sample for AOC19-OPP-ORG-BOT-001 for the following analytes:

- Arsenic
- Barium
- CrT
- Cobalt
- Copper
- Lead
- Nickel
- Vanadium
- Zinc

There were no CSL exceedances, except for arsenic which has a CSL less than the BK concentration. Sample AOC19-OPP-ORG-BOT-001 was collected from an orange-stained area from approximately 4 feet to 5 feet bgs.

CLP Inorganics: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-28b).

PAHs: Samples were collected from 14 locations at depths ranging from 0 foot to 6 feet bgs, and no samples had detected results that exceeded their respective CSLs (Table 3-28c). One additional sample was collected as part of groundwater remedy construction (AOC19-OPP-ORG-BOT-001). No PAHs were detected.

TPH: TPH was not a COPC for this unit; therefore, samples were not analyzed for TPH.

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected from 14 locations; there are no applicable CSLs (Table 3-28d). One additional sample was collected as part of groundwater remedy construction (AOC19-OPP-ORG-BOT-001).

Pesticides: Samples were collected from 2 locations, and no pesticides were detected in either sample (Table 3-28e).

PCBs: Samples were collected from 10 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-28f).

Dioxins and Furans: Samples were collected from 10 locations at depths ranging from 0 foot to 6 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSL for TEQ human was exceeded at 1 location, as shown in Table 3-28g.

TEQ human was detected exceeding the CSL (220 ng/kg) in 1 sample collected at depths 0 foot to 0.5 foot bgs at a concentration of 630 ng/kg (Table 3-28g). A sample from location AOC19-10 was collected in a gravel area south of the former hotwell (Figure 3-16k).

The lateral and vertical extents of exceedances have been defined by samples less than CSLs.

4.2.15.5 AOC 19 Conceptual Site Model

Figure 4-22a through 4-22d are a graphical CSM and cross sections developed for AOC 19 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Figures 4-22e and 4-22f are scaled engineering drawings of the hotwell system. Exhibit 4-29 presents the following information for AOC 19:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 19 are likely to be historical liquid discharges (spills) from the former JCW hotwell and leaks from the JCW pumps. In addition, incidental spills during the mixing of the chemicals, and potentially during the manual addition of the chemicals, could have impacted the soil in this area. The former hotwell may also be a source of groundwater contamination based on nearby monitoring well MW-68-180 having elevated concentrations of CrVI and CrT in groundwater. Continuing efforts for better understanding the potential sources in the vadose zone are ongoing through other evaluation methods. These efforts are discussed at ongoing Technical Working Group meetings (Appendix C provides additional information).

The presence of the following analytes in soil at AOC 19 is consistent with the release of JCW:

- CrVI
- CrT
- Molybdenum

The presence of the following analytes is likely related to wear metals associated with the compressor engines, as well as galvanized materials:

- Cadmium
- Copper
- Lead
- Zinc

Exhibit 4-29. Conceptual Site Model – AOC 19
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Incidental spills or releases from former cooling liquid nixing area **COPCs include:** • Metals • Dioxins and furans	• Surface soil	• Percolation • Infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil • Potential groundwater	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker

The quantity of liquid released from the hotwell and pumps is unknown; however, periodic overflows and leaks are known to have occurred. It is also possible that cooling water could have been released directly to subsurface soil through small cracks in the concrete hotwell. The potential quantity of chemicals released in the vicinity of the former cooling additive mixing shed is also unknown; however, releases are expected to be relatively small, as spills would have been small. If a large release from the hotwell occurred, it could have resulted in cooling water infiltrating into gravel surfaces around the hotwell as well as reaching the storm drain system or TCS access road and being discharged outside the fence line. Releases from the storm drain system are addressed by the storm drain investigation program described in Section 4.3

The primary source medium at AOC 19 is surface soil. Because most of the area around the former hotwell, and former cooling liquid mixing area and chemical additive mixing shed is covered with gravel, liquids released in AOC 19 would have been released to surface soil and would have infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils and possibly to groundwater. If the concrete of the former hotwell lacked sufficient integrity, subsurface soil may be a secondary source medium. Because the entire AOC is covered with gravel or pavement, runoff of contaminated surface soil in rainwater is considered to be only a minor migration pathway (where gravel cover is thin); however, soluble constituents located in surface soils may dissolve into rainwater and be carried in surface water runoff.

4.2.15.6 Evaluation of Data Against Data Quality Objectives for AOC 19

This section discusses the evaluation of data against DQOs for AOC 19.

Decision 1 (Nature and Extent Determination): Deferred.

Additional evaluation has been deferred until the unit becomes available for sampling.

Based on current Site data, nature and extent have not been sufficiently defined laterally or vertically for the following compounds:

- Lateral extent of CrVI, CrT, and lead
- Vertical extent of the following analytes:
  - CrVI at AOC19-OS7
  - CrT at AOC 19-7 and AOC19-OS7
  - Lead at AOC19-5 and AOC19-7
  - Mercury at AOC19-5
  - Molybdenum at the following locations:
    - AOC19-7
    - AOC19-10
    - AOC19-11
    - AOC19-OS1
    - AOC19-OS2

Tables 3-28a through 3-28g and on Figures 3-16a through 3-16k provides analytical results. Table 3-28h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 54 samples were collected from 25 locations at depths ranging from 0 foot to 10 feet bgs for AOC19. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. Although DQO 1 is deferred, EPCs inside the fence line were calculated based on all data collected within the fence line and were not calculated on a unit by unit basis. Data were sufficient for calculating EPCs for inside the TCS. EPCs will be evaluated in the future when the TCS is decommissioned.

At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan and subsequent data gap investigations. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 19 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are covered with gravel, paved, or otherwise covered with an impermeable surface preventing migration of surface soil. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

Additional Considerations: It is recommended that an evaluation of remedial options to address surficial contamination at the concrete pad of the former chemical mixing additive shed be considered for inclusion in the CMS/FS.

4.2.16 AOC 20 – Industrial Floor Drains

This section provides details about AOC 20 – Industrial Floor Drains.

4.2.16.1 Setting

AOC 20 consists of the industrial floor drains within the TCS buildings and other industrial structures and facilities within the upper yard that are routed to the oily water treatment system (formerly Units 4.3, 4.4, and 4.5). AOC 20 does not include the miscellaneous floor drains in the area, such as lavatories, that drain to one of the three septic systems on the TCS.

Several of the industrial buildings within the TCS are equipped with floor drains that capture liquids released to the floor of the building and convey the liquid to the current oily water treatment system; previously, these drains conveyed flow to the former API OWS (part of AOC 24, Section 4.2.20) and the old oily water treatment system (Units 4.3, 4.4, and 4.5). In addition, other industrial facilities, such as the steam cleaning area and the main JCW surge tanks, are equipped with drains that capture overflow and spills. A pipe trench that extends from just north of the steam cleaning area to the eastern side of the Compressor Building also drains to the oily water treatment system and has been included in this AOC.

Collectively, these drains are referred to as industrial floor drains to distinguish their use and intent from the storm drains that are also present at the TCS. As shown on Figure 3-20, industrial floor drains are found in the following buildings and facilities:

- Compressor Building
- Auxiliary Building
- JCW Pumps
- Oil Storage Tank Area
- Steam Rack (steam cleaning area)
- Fire Water Pump Building (former Water Softener Building)

4.2.16.2 Unit History

Historically, the pipes associate with AOC 20 were made primarily from vitrified clay. Currently, the system contains a variety of pipe materials, including the following materials:

- Reinforced fiberglass
- PVC
- Cast iron
- Acrylonitrile-butadiene-styrene

The aboveground lines are all welded carbon steel pipe (PG&E 1991).

No sampling of material from within the industrial floor drainpipes has been conducted. Many of the pipes leading from the industrial floor drains to the oily water treatment system are located under building floors and machinery, or are buried below ground and inaccessible.

The liquids potentially discharged to the industrial floor drains would consist primarily of liquids present within the industrial buildings and facilities. Liquids used in the operations in the industrial buildings included:

- Lubricating oil
- Oily water from the steam cleaning area and compressor and generator engine steam cleaning
- JCW
- Lubricating oil cooling water

The other two sources of liquids consist of the rainwater that collected in the steam cleaning area pipe trench and hose-down water used when the pipe trench was cleaned. Drainage from the various cooling water systems would have contained chromium compounds and, later, molybdenum. No records exist of any specific releases to the industrial floor drains; however, the drains are expected to have captured incidental drips and spills during plant operations, as well as occasional washing liquid from floor cleaning within the buildings.

4.2.16.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. Borings were advanced at numerous locations across the station for AOC 20; therefore, the lithology varies by location. The lithology descriptions for investigation areas adjacent to sample locations also provide lithology descriptions. Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location at AOC 20.

Debris observed in samples collected at AOC 20 was at boring location AOC20-5, where metal debris was observed in the upper 1 foot of soil. Debris was also observed in the upper 1 foot of soil at AOC20-4.

4.2.16.4 Floor Drain Investigation Summary

AOC 20 floor drains, maintenance holes, and cleanouts were investigated as part of this investigation in 2016. Table 3-43 summarizes the results of the floor drain survey. Figure 3-20 shows floor drain lines, maintenance holes, and cleanouts, along with associated soil sample locations. Figure 3-20 also identifies segments of storm drain lines, maintenance holes, and cleanouts that were video surveyed.

Of the approximately 45 floor drains identified onsite, 19 were video surveyed. Three maintenance holes and 6 cleanouts were also surveyed. Table 3-43 provides a detailed list of size, composition, and observations. Summaries of potential issues (for example, blockages) and results of soil samples associated with floor drains, maintenance holes, and cleanouts are provided in the following paragraphs.

Floor drains with blockages, standing water, debris, or corrosion (or some combination of these) were encountered in the following floor drains:

- FD-2
- FD-4
- FD-5
- FD-14
- FD-16
- FD-17
- FD-38
- FD-44

All three maintenance holes that were investigated had liquid, sludge, or blockages. Cleanouts with liquid, debris, or blockages were CO-1, CO-2, and CO-5.

Soil samples were collected from 9 locations along the floor drains, primarily at locations of junctions.

4.2.16.5 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-29a through 3-29g provide analytical results for AOC 20, and Figures 3-14a through 3-14o show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.16.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Nature and extent are discussed based on the limited sampling areas; however, the decision for DQO 1 is deferred until the currently inaccessible areas become available for sampling.

Metals: Soil samples were collected from 16 locations at depths ranging from 0 foot to 10 feet bgs. No CSLs were exceeded in AOC 20. The BK concentrations were exceeded for the following analytes at one or more locations across AOC 20, as shown in Table 3-29a:

- Cadmium
- CrVI
- CrT

- Copper
- Lead
- Molybdenum
- Nickel
- Zinc

The analytes most frequently detected exceeding the BK levels were as follows:

- CrVI was detected exceeding its BK value (0.83 mg/kg) in 8 samples between depths 0 foot and 9.5 feet bgs (Table 3-29a). The greatest CrVI concentration of 5.1 mg/kg was detected at sample location AOC20-OS12 at the surface to 0.5 foot bgs. A sample from location AOC20-OS12 was collected from the western side of AOC 5 (Figure 3-14d).
- CrT was detected exceeding its BK value (39.8 mg/kg) in 9 samples between depths 0 foot and 9.5 feet bgs (Table 3-29a). The greatest CrT concentration of 220 mg/kg was detected at sample location AOC20-OS12 at 2 feet to 3 feet bgs. A sample from location AOC20-OS12 was collected from the western side of AOC 5 (Figure 3-14e).
- Copper was detected exceeding its BK value (16.8 mg/kg) in 13 samples between depths 0 foot and 9.5 feet bgs (Table 3-29a). The greatest copper concentration of 140 mg/kg was detected at sample location AOC20-08 at the surface to 0.5 foot bgs. A sample from location AOC20-08 was collected from between AOC 23 and AOC 25 (Figure 3-14g).
- Lead was detected exceeding its BK value (8.39 mg/kg) in 14 samples between depths 0 foot and 9.5 feet bgs (Table 3-29a). The greatest lead concentration of 78 mg/kg was detected at sample location AOC20-OS12 at 2 feet to 3 feet bgs. A sample from location AOC20-OS12 was collected from the western side of AOC 5 (Figure 3-14e).
- Zinc was detected exceeding its BK value (58 mg/kg) in 9 samples between depths 0 foot and 9.5 feet bgs (Table 3-29a). The greatest zinc concentration of 280 mg/kg was detected at sample location AOC20-OS12 at 2 feet to 3 feet bgs. A sample from location AOC20-OS12 was collected from the western side of AOC 5 (Figure 3-14e).

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, except for the following analytes on the western side of AOC 6, as discussed in Section 4.2.16:

- CrVI
- CrT
- Copper
- Lead
- Zinc

The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, or by concentrations that do not increase with depth, except at AOC20-OS16 and AOC20-OS21, where concentrations of the following analytes increase with depth and exceed BK concentrations:

- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Zinc

However, there are no exceedances of CSLs or RBRGs; therefore, concentrations in the deepest samples do not pose unacceptable risks to receptors. AOC20-OS16 was collected below the junction of

FD-17 and the main line. AOC20-OS21 was collected at the junction of the main line west of the Compressor Building and the main line from maintenance hole 2.

CLP Inorganics: CLP inorganics were not a COPC for this unit; therefore, samples were not analyzed for CLP inorganics.

PAHs: Samples were collected from 16 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-29b).

TPH: Samples were collected from 16 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-29d).

VOCs and SVOCs: Samples were collected from 15 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-29c).

General Chemistry: General chemistry parameters were not a COPC for this unit; therefore, samples were not analyzed for general chemistry parameters.

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected at 16 locations at depths ranging from 0 foot to 10 feet bgs. The CSLs for Aroclor 1254, Aroclor 1260, and total PCBs were exceeded at AOC20-OS09 and AOC20-OS12, as shown in Table 3-29e and summarized as follows:

- Aroclor 1254 was detected exceeding the CSL (970 µg/kg) in 3 samples between depths 0 foot and 3 feet bgs (Table 3-29e). The greatest Aroclor 1254 concentration of 2,800 µg/kg was detected at sample location AOC20-OS12 at 2 feet to 3 feet bgs. A sample from location AOC20-OS12 was collected from the western side of AOC 5.
- Aroclor 1260 was detected exceeding the CSL (990 µg/kg) in 2 samples between depths 0 foot and 3 feet bgs (Table 3-29e). The greatest Aroclor 1260 concentration of 1,700 µg/kg was detected at sample location AOC20-OS12 at 2 feet to 3 feet bgs. A sample from location AOC20-OS12 was collected from the western side of AOC 5.
- Total PCBs were detected exceeding the CSL (940 µg/kg) in 3 samples between depths of 0 foot and 3 feet bgs (Table 3-29e). The greatest total PCB concentration of 4,517 µg/kg was detected at sample location AOC20-OS12 at 2 feet to 3 feet bgs. A sample from location AOC20-12 was collected from the western side of AOC 5.

The lateral and vertical extents of exceedances have been defined by samples with results not detected exceeding reporting limits or the CSL.

Dioxins and Furans: Samples were collected from one location at depths from 0 foot to 2 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. No samples had detected results that exceeded their respective CSLs (Table 3-29f).

4.2.16.6 AOC 20 Conceptual Site Model

Figure 4-23 is a graphical CSM developed for AOC 20 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-30 presents the following information for AOC 20:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 20 are likely to be incidental spills and leaks from the industrial drain system of lubricants and cooling water generated during plant operations. The quantity of liquid released from the industrial floor drains and associated piping to the environment is unknown. The presence of CrVI and CrT is consistent with leaks or spills of cooling water entering the drains at the JCW pumps and copper, lead, and zinc as wear metals from engine lubricants.

The primary source media at AOC 20 are shallow or subsurface soil, as the system consists primarily of underground piping. Short runs of aboveground piping overlying unpaved (gravel-covered) soil are also part of this unit. In the gravel-covered areas with aboveground piping, liquids released in AOC 20 would have been released to surface soil and could have infiltrated to shallow soil. Liquids released to shallow soils either directly from underground piping or through infiltration from the surface could have infiltrated to deeper soils. The analytical results do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time. Because the entire AOC is covered with gravel or pavement, runoff of contaminated surface soil in rainwater is considered to be only a minor migration pathway (where gravel cover is thin); however, soluble constituents located in surface soils may dissolve into rainwater and be carried in surface water runoff.

Exhibit 4-30. Conceptual Site Model – AOC 20
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Incidental spills and releases within the TCS and floor drains **COPCs include:** • Metals • PCBs	• Surface soil	• Percolation • Infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker

4.2.16.7 Evaluation of Data Against Data Quality Objectives for AOC 20

This section discusses the evaluation of data against DQOs for AOC 20.

Decision 1 (Nature and Extent Determination): Deferred. Additional evaluation has been deferred until the unit becomes available for sampling.

Based on current Site data, nature and extent have not been sufficiently defined laterally or vertically for the following compounds and associated areas:

- Lateral extent of the following analytes on the western side of AOC 6:
  - CrVI
  - CrT
  - Copper
  - Lead
- Vertical extent of molybdenum at AOC20-OS16 and AOC20-OS21. These were opportunistic samples collected during maintenance and construction activities; therefore, deeper samples could not be collected.
- Vertical extent of zinc at AOC20-OS16. This was an opportunistic sample collected during maintenance and construction activities; therefore, deeper samples could not be collected.

Tables 3-29a through 3-29f provide analytical results. Table 3-29g provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, up to 45 samples were collected from up to 16 locations at depths ranging from 0 foot to 10 feet bgs for AOC 20. The samples were analyzed for one or more of the following analytes:

- Metals
- VOCs
- SVOCs
- PAHs
- TPHs
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 20 do not pose a potentially unacceptable risk to receptors outside the TCS fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. One surface soil sample was collected from an unpaved area associated with AOC 20 between 0 foot and 1 foot bgs and submitted for analysis of the following analytical groups:

- Metals
- PAHs
- VOCs
- SVOCs
- TPH
- PCBs

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the TCS fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). No ISLs were exceeded.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at AOC 20. Potential migration of contamination at depth from AOC 20 does not appear to be a source of contamination to downgradient Part A investigation units.

Decision 5 (Data Sufficiency to Support CMS/FS): Deferred. Data gap analysis has been deferred until the unit becomes available for sampling.

4.2.17 AOC 21 – Round Depression Near Sludge Drying Bed

This section provides details about AOC 21 – Round Depression Near Sludge Drying Bed.

4.2.17.1 Setting

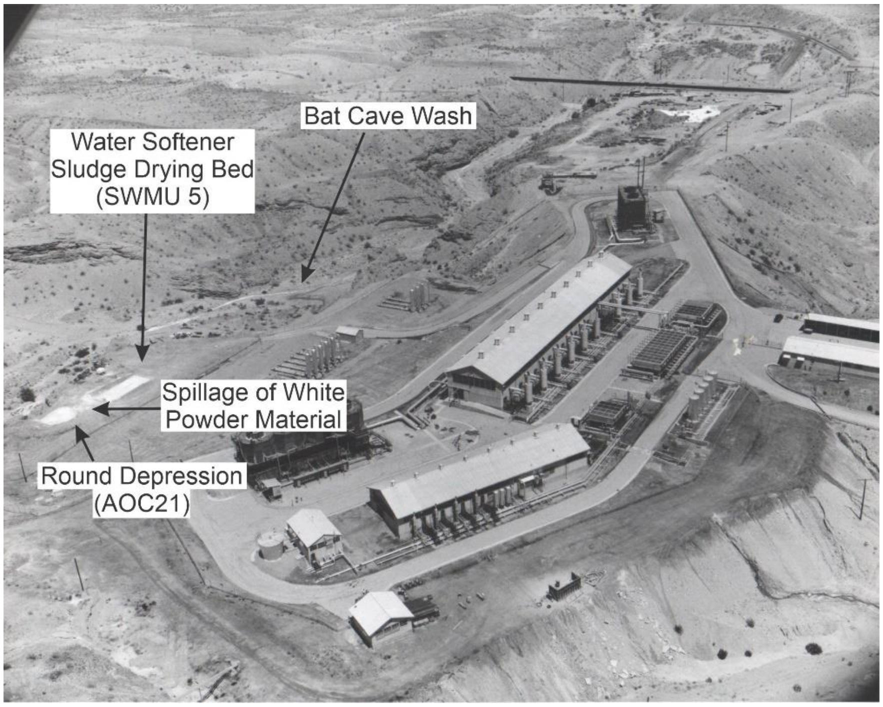
AOC 21 was a former round structure adjacent to Sludge Drying Bed 1 (part of SWMU 5) identified from a 1955 aerial photograph (Photographs 4.1.1-1 and 4.1.1-2 in Section 4.1.1), as shown on Figure 2-2. This round structure was approximately 20 feet wide, with an uncertain depth. No information is available on the construction of this area, although the structure appears to be constructed with a circular earthen berm. The area around AOC 21 is unpaved.

4.2.17.2 Unit History

AOC 21 was filled with white powder material that was most likely water softener (lime) sludge. The structure appeared to contain material of the same color as the material in SWMU 5 and may have served a similar function as the sludge drying bed. During the 1950s and early 1960s, Sludge Drying Bed 13 (also part of SWMU 5) was used to dry lime treatment sludge from the Permutit water softening system. The Permutit water softening system used a combination of lime, soda ash, and sodium aluminate to remove excess minerals from TCS well water. The available information indicates that at least a portion of the dried or partially dried sludge was transported to the Railroad Debris Site (AOC 14, discussed in Section 4.1.7) (Russell, pers. comm. 2006b). Based on data from the white powder material in AOC 14, the material may contain low levels of CrT and CrVI. It is also possible that white powder material observed in Bat Cave Wash and East Ravine is water softener sludge.

4.2.17.3 Field Observations

In an ariel photograph from 1955, some apparent spillage of the white material is visible between SWMU 5 and AOC 21 (Photograph 4.2.17-1). The water-softener sludge likely contained some liquid, as former employees reported that it was sprayed onto the ground at AOC 14 (CH2M 2007a).



Photograph 4.2.17-1: May 19, 1955, Aerial Photograph 2, White Power Material between AOC 21 and SWMU 5

Note: Facing northwest.

4.2.17.4 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 21 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 21 comprises silty sand with gravel with approximately 20 to 30% gravel to cobbles and 60 to 80% silt and sand, with coarse grained material generally increasing with depth. Lithology was recorded to a maximum depth of 10 feet bgs.

Staining and debris observed in samples collected at AOC 21, and associated contamination, was at boring location AOC21-1, where a layer of white powder material was encountered from 2.5 feet to 5.5 feet bgs. Samples were collected from 2 feet to 3 feet bgs and 5 feet to 6 feet bgs at AOC21-1, and no analytes exceeded the CSLs.

4.2.17.5 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-30a through 3-30h provides analytical results for AOC 21, and Figures 3-10a through 3-10h show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.17.6 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from up to 10 locations within AOC 21, at depths ranging from 0 foot to 9 feet bgs. No CSLs were exceeded in AOC 21. The BK concentrations were exceeded for the following analytes:

- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Zinc

The analytes were exceeded at one or more of the following locations (Table 3-30a):

- AOC21-1
- AOC21-OS1
- AOC21-OS2
- AOC21-OS3
- AOC21-OS4

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The analytes most frequently greater than the BK levels were as follows:

- CrVI was detected exceeding the BK value (0.83 mg/kg) in 5 samples between depths 0 foot and 6 feet bgs (Table 3-30a). The greatest CrVI concentration of 2 mg/kg was detected at sample location AOC21-1 at 5 feet to 6 feet bgs. A sample from location AOC21-1 was collected within the unit (Figure 3-10c), and white powder was observed in the soil from 2.5 feet to 5.5 feet bgs.
- Copper was detected exceeding the BK value (16.8 mg/kg) in 2 samples between depths 0 foot and 0.5 foot bgs (Table 3-30a). The greatest copper concentration of 98 mg/kg was detected at sample location AOC21-OS2 at the surface to 0.5 foot bgs. A sample from location AOC21-OS2 was collected southwest of the unit.
- Lead was detected exceeding the BK value (8.39 mg/kg) in 3 samples between depths 0 foot and 1.5 feet bgs (Table 3-30a). The greatest lead concentration of 41 mg/kg was detected at sample location AOC21-OS2 at the surface to 0.5 foot bgs. A sample from location AOC21-OS2 was collected southwest of the unit (Figure 3-10e).

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels, not detected exceeding reporting limits, or by nearby samples. The results for the deepest sample at AOC21-OS1 exceeded the BK value for CrVI by a FOE of 2.1 times the BK value. This may be considered a data gap; however, collecting additional deeper samples at this location would require a significant disturbance for the relatively low exceedance (1.8 mg/kg). Additionally, the CrVI concentration is less than the CSL and RBRG; therefore, it does not pose an unacceptable risk to receptors.

CLP Inorganics: The BK concentrations were exceeded at AOC21-1, AOC21-OS1, and AOC21-OS4, as shown in Table 3-30b, as follows:

- Calcium was detected exceeding the BK value (66,500 mg/kg) in 5 samples between depths 0 foot and 6 feet bgs (Table 3-30b). The greatest calcium concentration of 310,000 mg/kg was detected at sample location AOC21-OS1 at 2 feet to 3 feet bgs. A sample from location AOC21-OS1 was collected south of the unit (Figure 3-10g).
- Magnesium was detected exceeding the BK value (12,100 mg/kg) in 2 samples between depths 2 feet and 6 feet bgs (Table 3-30b). The greatest magnesium concentration of 17,000 mg/kg was

detected at sample location AOC21-1 at 5 feet to 6 feet bgs. A sample from location AOC21-1 was collected within the unit.

- Sodium was detected exceeding the BK value (2,070 mg/kg) in 2 samples between depths 0 foot and 3 feet bgs (Table 3-30b). The greatest sodium concentration of 3,400 mg/kg was detected at sample location AOC21-OS4 at 2 to 3 feet bgs. A sample from location AOC21-OS4 was collected within the unit.

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels, not detected exceeding reporting limits, or by nearby samples. The deepest sample at AOC21-OS1 exceeds the BK value for calcium by a FOE of 3.3 times the BK value. This small exceedance of calcium is not considered a data gap that requires filling, as it is not a compound driving risk.

PAHs: Samples were collected at up to 10 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-30c).

TPH: Samples were collected at up to 10 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-30d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected at up to 10 locations and were only analyzed for pH, which has no CSL or BK concentration (Table 3-30e).

Pesticides: Samples were collected at 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-30f).

PCBs: Samples were collected at 10 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-30g).

Dioxins and Furans: Dioxin and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans.

4.2.17.6 AOC 21 Conceptual Site Model

Figure 4-24 is a graphical CSM developed for AOC 21 based on Site history and BK reported in the RFI/RI Work Plan (CH2M 2013a). Exhibit 4-31 presents the following information for AOC 21:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is discussed in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary source of contamination at AOC 21 is likely incidental spills of water-softener sludge during transfer of material from the sludge drying beds to AOC 21 or during loading of material onto trucks to haul it to AOC 14. Concentrations of calcium and sodium exceeding BK in soil samples is consistent with the presence of lime treatment sludge from the Permutit water softening system. The Permutit water softening system used a combination of lime, soda ash, and sodium aluminate, which contain calcium (lime) and sodium (soda ash and sodium aluminate), among other constituents. Copper and lead contamination at AOC 21 is likely associated with wear metals from industrial equipment onsite. The occurrence of incidental spills is supported by Photograph 4.2.17-1, which shows that white coloration is visible between AOC 21 and SWMU 5. The potential quantity of solid sludge or associated liquid released in the vicinity AOC 21 is unknown. It is possible that the bottom of the AOC 21 structure consisted solely of soil and that softened water may have been released to shallow soil directly beneath the structure.

The primary source media at AOC 21 are surface and shallow soil. Because the area around AOC 21 was unpaved, spilled sludge would have been released directly to surface soil, and any associated liquids could have infiltrated to shallow soil. Liquids released inside the AOC 21 round structure would have been released directly to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils. Runoff of contaminated surface soil in rainwater is a potential migration pathway for soils located outside the structure. Surface runoff may have transported contaminants from AOC 21 to Bat Cave Wash. Windblown dust contamination from small particles of contaminated surface soil around AOC 21 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils.

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Exhibit 4-31. Conceptual Site Model – AOC 21
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental spills and releases of material stored in the depression **COPCs include:** • Metals	• Surface soil	• Percolation • Infiltration • Potential entrainment in stormwater and surface water runoff	• Subsurface soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.2.17.7 Evaluation of Data Against Data Quality Objectives for AOC 21

This section discusses the evaluation of data against DQOs for AOC 21.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-30a through 3-30g and Figures 3-10a through 3-10h provide analytical results. Table 3-30h provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 18 samples were collected from 10 locations at depths ranging from 0 foot to 15 feet bgs for AOC 21. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry parameters
- Pesticides
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 21 may pose a potentially unacceptable risk to receptors outside the TCS fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 21 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry parameters
- PCBs

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the TCS fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following analytes:

- CrVI
- Copper

- Lead
- Mercury
- Molybdenum
- Zinc

The greatest FOE was for mercury, which was detected at a concentration exceeding the ISL (ECV) of 0.0125 mg/kg at 1 of 5 locations, with a maximum concentration of 0.14 mg/kg.

Table 3-39j summarizes the greatest exceedances, and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within AOC 21 have the potential to migrate outside the fence line.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. One sample (AOC21-OS2) exceeded the ISL for lead (BK; 8.39 mg/kg) by a factor of 1.3, with a concentration of 11 mg/kg. Potential migration of contamination at depth from AOC 21 may be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the TCS fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part A units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 21 were collected at AOC21-1. Table 3-38 provides results are presented in. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.18 AOC 22 – Unidentified Three-Sided Structure

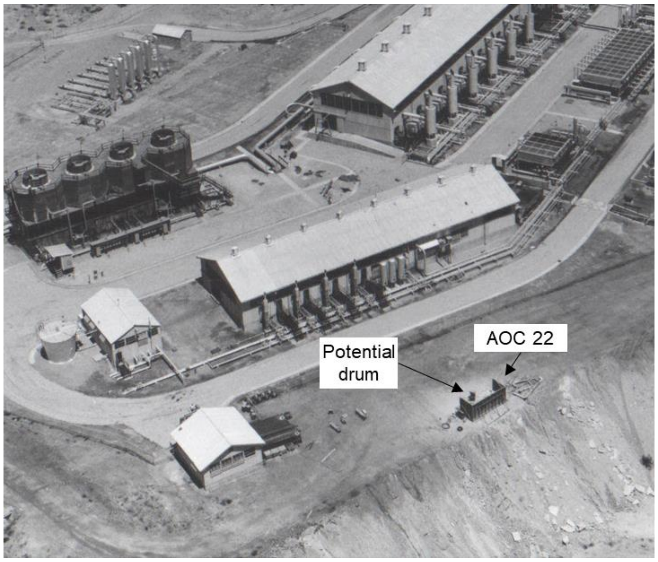
This section provides details about AOC 22 – Unidentified Three-Sided Structure.

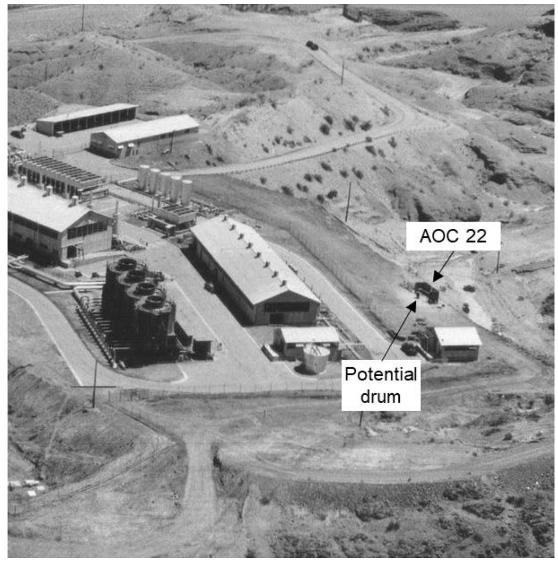
4.2.18.1 Setting

AOC 22 consists of a former three-sided structure located in the upper yard, along the present southeastern TCS fence line, as shown on Figure 2-2. 1955 aerial photographs show the structure (Photographs 4.2.18-1, 4.2.18-2, and 4.2.18-3). The northern end of the structure was slightly north of what is now the Technical Maintenance Shop (the Technical Maintenance Shop did not exist in the aerials that show the three-sided structure).

4.2.18.2 Unit History

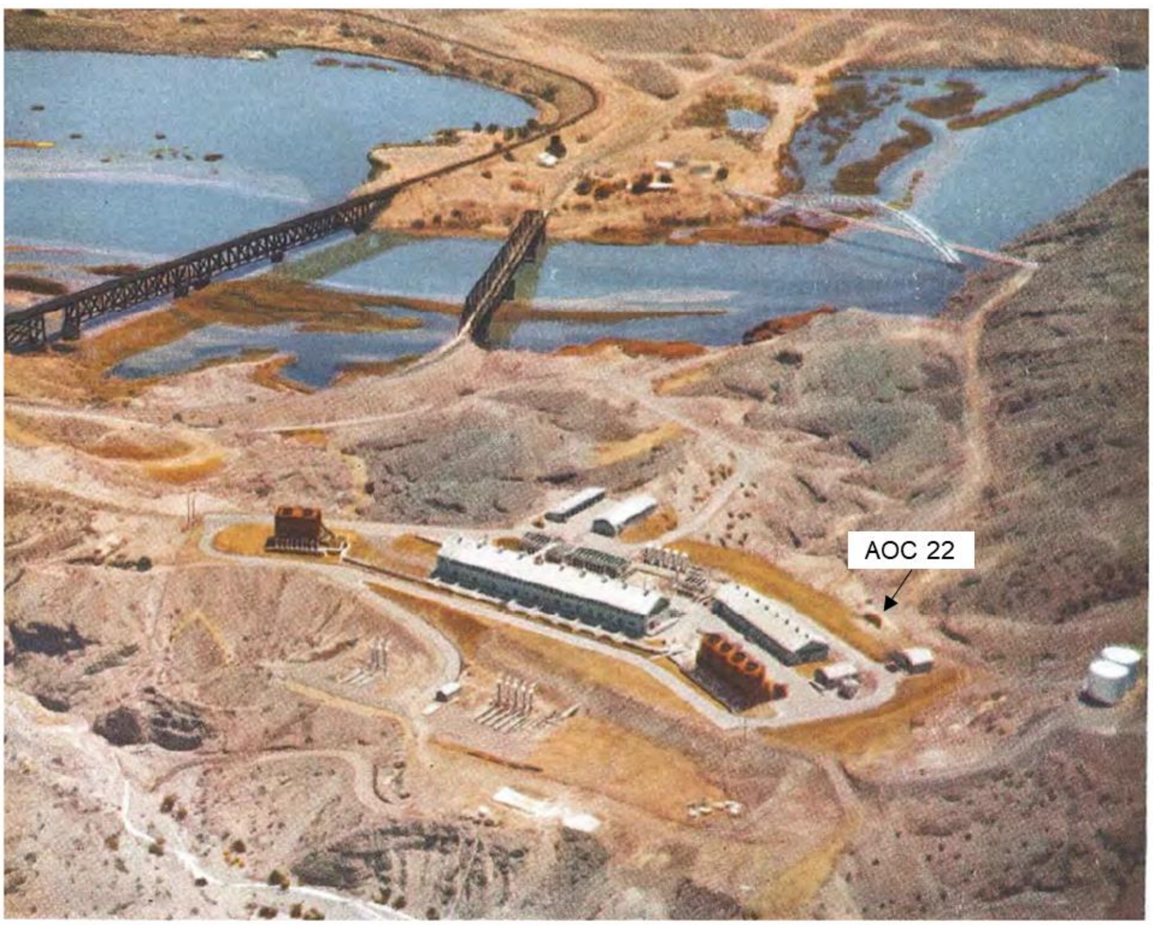
Based on the aerial photographs, it appears that the footprint of the structure would have been located within the current unpaved area adjacent to the existing fence. In the aerial photographs, a container that appears to be a drum is located near this structure. There is no available information on the use or purpose of this structure or any materials that may have been stored at this structure or in its vicinity. Soil around this former structure, as observed in the May 19, 1955, aerial photographs (Photographs 4.2.18-1 and 4.2.18-2) and the 1954 to 1956 oblique aerial photograph (Photograph 4.2.18-3) appears lighter in color than surrounding soil.





Photograph 4.2.18-1 (left): May 19, 1955, Aerial Photograph 2 (cropped), Three-sided Structure
Note: Facing northwest. Potential drum also identified.

Photograph 4.2.18-2 (right): May 19, 1955, Aerial Photograph 1 (cropped), Three-sided Structure
Note: Facing northeast. Potential drum also identified.



Photograph 4.2.18-3: Taken between 1954 and 1956 Aerial Photograph 1, AOC 22
Note: As found on an invitation from Needles Chamber of Commerce to a dinner on May 5, 1956, dedicated to PG&E. Oblique view to the east.

4.2.18.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 22 is provided in this section, and Appendix B, Attachment B1 provides boring logs with more detailed lithologic descriptions by location.

The soil at AOC 22 comprises silty sand with gravel, coarsening downward to well-graded sand with gravel with approximately the following amounts of materials:

- 20% gravel
- 20% cobbles
- 50% sand
- 10% silt

Lithology is recorded to a maximum depth of 15 feet bgs at AOC 22.

4.2.18.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-31a through 3-31i provide analytical results for AOC 22, and Figures 3-17a through 3-17c show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.18.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 3 locations at depths from 0 foot to 10 feet bgs. The CSL for CrVI was exceeded at 1 location. The BK concentrations were exceeded for the following analytes at one or more locations across AOC 22, as shown in Table 3-31a:

- CrVI
- CrT
- Copper
- Lead
- Zinc

The analytes most frequently detected exceeding the BK concentration were as follows:

- CrVI was detected exceeding its CSL (6.3 mg/kg) in samples collected from 2 feet to 3 feet bgs and its BK value (0.83 mg/kg) in 3 samples between depths 0 foot and 3 feet bgs (Table 3-31a). The greatest CrVI concentration of 10 mg/kg was detected at sample location AOC22-2 at 2 feet to 3 feet bgs. CrVI was not detected in samples collected at 5 feet to 6 feet bgs and 9 feet to 10 feet bgs in AOC 22-2. A sample from location AOC22-2 was collected along the western side of the former three-sided structure (Figure 3-5a).

- Lead was detected exceeding its BK value (8.39 mg/kg) in 4 samples between depths 0 foot and 3 feet bgs (Table 3-31a). The greatest lead concentration of 100 mg/kg was detected at sample location AOC22-1 at 2 feet to 3 feet bgs. No samples were collected below 2 feet to 3 feet bgs. A sample from location AOC22-1 was collected in the center of the former three-sided structure (Figure 3-17b).

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, as shown on Figures 3-17a through 3-17c. Although a few locations have detected metal results slightly greater than (up to 2 times) their respective BK values, these minor exceedances of the BK values are less than RBCs and CSLs and do not present an unacceptable risk to receptors. Therefore, the lateral extent of metals is not considered a data gap that requires filling.

The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, except at AOC22-1 where CrT and lead exceeded the BK concentrations at the deepest sample (2 feet to 3 feet bgs), as shown in Table 3-31a. These exceedances at 2 feet to 3 feet bgs are less than RBCs and CSLs and do not present an unacceptable risk to receptors; however, concentrations increase with depth from 0 foot to 0.5 foot bgs to 2 feet to 3 feet bgs. Therefore, it is recommended that AOC 22 be considered for inclusion in the CMS/FS.

CLP Inorganics: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective BK levels or CSLs (Table 3-31b).

PAHs: Samples were collected at 3 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-31c).

TPH: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-31d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected at 2 locations and were only sampled for pH, which has no CSL or BK level (Table 3-31e).

Pesticides: Samples were collected at 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-31f).

PCBs: Samples were collected at 3 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-31g).

Dioxins and Furans: Samples were collected from 2 locations at depths from 0 foot to 10 feet bgs. Dioxins and furans are evaluated by calculating TEQ values for human receptors. No samples had detected results that exceeded its CSLs (Table 3-31h).

4.2.18.5 AOC 22 Conceptual Site Model

Figure 4-25 is a graphical CSM developed for AOC 22 based on Site history and background reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-32 presents the following information for AOC 22:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination at AOC 22 are likely to be incidental spills of any materials stored or handled in this area. The presence of metals exceeding BK concentrations at AOC 22 could be related to incidental spills, although the potential type and quantity of any materials released in the vicinity of this structure are unknown; metals that exceeded included the following:

- CrVI
- CrT
- Copper
- Lead
- Zinc

The primary source medium at AOC 22 is surface soil. Because the area around AOC 22 is unpaved, liquids released in AOC 22 would have been released to surface soil and could have infiltrated to shallow soil. Liquids released to shallow soils could have infiltrated to deeper soils. The analytical results for AOC 22 do not support evidence of a release of VOCs or that VOCs have been degraded by heat and light over time. In addition, COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 22 this transport mechanism may result in COPCs migrating to the east to the area outside the fence line (East Ravine).

Exhibit 4-32. Conceptual Site Model – AOC 22
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Incidental spills and releases from possible hazardous material storage in structure **COPCs include:** • Metals	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.2.18.6 Evaluation of Data Against Data Quality Objectives for AOC 22

This section discusses the evaluation of data against DQOs for AOC 22.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally. Nature and extent have not been defined vertically for CrT or lead at AOC22-1. This sample location in AOC 22 shall be considered for inclusion in the CMS/FS.

Tables 3-31a through 3-31h and Figures 3-17a through 3-17c provide analytical results. Table 3-31i provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 10 samples were collected from 3 locations at depths ranging from 0 foot to 10 feet bgs for AOC 22. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Pesticides
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 22 may pose a potentially unacceptable risk to receptors outside the TCS fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soils samples were collected in unpaved areas associated with AOC 22 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry parameters
- Pesticides
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the TCS fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following analytes and equivalency factors:

- CrVI, copper, and lead were detected in 1 or more samples at concentrations exceeding ISLs. The greatest FOE was for CrVI, which exceeded the ISL (BK) of 0.83 mg/kg at 1 of 3 locations, with a maximum concentration of 3.3 J (estimated) mg/kg at AOC22-1.
- TEQ avian exceeded the ISL (ECV) of 16 ng/kg at 2 of 2 locations, with a maximum concentration of 92 ng/kg at AOC22-3.
- TEQ human exceeded the ISL (DTSC-SL) of 50 ng/kg at 1 of 2 locations, with a maximum concentration of 200 ng/kg at AOC22-3.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 2 of 2 locations, with a maximum concentration of 200 ng/kg at AOC22-3.

Table 3-39j summarizes the greatest exceedances and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, constituents exceeding ISLs within AOC 22 have the potential to migrate outside the fence line.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at AOC 22. Although sample location AOC22-2 is located approximately 10 feet from the fence line and is in a stable area under pavement, there were no samples collected between AOC22-2 and the TCS fence line. As erosion is known to occur at the fence line in this area, a conservative assessment of offsite migration considering the analytical results from sample AOC22-2 was conducted. AOC22-2 results exceeded the ISLs for the following analytes:

- CrVI
- CrT
- Copper
- Lead
- Mercury
- Total PCBs

Potential migration of contamination at depth from AOC 22 may be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the TCS fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part A units in Table 3-38 and in the risk assessment. The need for controls or removal of contaminated soil will be evaluated in the CMS/FS.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 22 were collected at AOC22-1. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.19 AOC 23 – Former Water Conditioning Building

This section provides details about AOC 23 – Former Water Conditioning Building.

4.2.19.1 Setting

AOC 23 is the Former Water Conditioning Building, which was previously referred to as the Water Softening Building and is currently identified as the Storage Building, located in the southern part of the upper yard, as shown on Figure 2-2. The building is currently used to store miscellaneous dry materials; no hazardous materials are stored there.

4.2.19.2 Unit History

Available information indicates that the Former Water Conditioning Building may have been used for dry storage of the chemicals (primarily soda ash and lime) used in the Permutit water softening process (CH2M 2014a). Water softening (minerals removal from raw well water) was conducted at the station to reduce the amount of cooling tower blowdown generated during plant operations and to reduce cooling tower maintenance requirements.

Chemical feed tanks for the water softening process were located inside the Former Water Conditioning Building. The water softening process occurred in the large Permutit precipitator outside the building (Permutit 1948). Raw (incoming) well water was pumped into the Permutit precipitator and mixed with soda and lime slurry to remove excess minerals and thereby soften the water. The Permutit process was used at the TCS until approximately 1962 (CH2M 2007a). The need for water softening was eliminated when the source of plant water was switched to new water supply wells on the Arizona side of the river in the early 1960s.

The primary chemical used was soda ash; plant records from 1958 indicate that soda ash was delivered in bulk shipments of approximately 50,000 pounds every 4 to 6 weeks. Lime was provided in 50-pound bags, and the process apparently consumed several hundred pounds per day (PG&E 1959). Sodium aluminate was another chemical used in the process. The Former Water Conditioning Building was divided into eastern and western sides. The western side contained the mixing tanks used to dissolve the soda ash and lime, as well as pumps to feed the lime and soda ash slurries to the Precipitation Tank outside the building. The pre-mixed chemicals were pumped to the Precipitation Tank through dedicated lines leading directly from inside the building to the Precipitation Tank. The eastern side of the building contained pumps used to circulate the treated (softened) water and fire water (PG&E 1960). Treated water was pumped into a holding tank, and water treatment was discontinued when the treated water tank was full. Precipitated water softening sludge was transferred directly to Sludge Drying Bed 1 (part of SWMU 5) through a dedicated pipeline.

In approximately 1957, a bulk chemical storage and feed system was constructed to handle the soda ash (PG&E 1957b, 1970a). This system consisted of a conveyor trench, an elevator, and storage bins on top of the building. The components of this system may have been removed when the two-step hazardous waste treatment system was constructed. At that time, one of the mixing tanks was reused as the Chromate Reduction Tank (SWMU 6), and the other tank was reused as part of the Precipitation Tank (SWMU 7) (PG&E 1970a-c).

The foundation of the Former Water Conditioning Building was built up around the mixing tanks (also referred to as “chemical vats”) to provide easy access during operations. Sometime after the tanks were removed, the concrete foundation was brought to a common level, and a small former stairwell was also filled in. The doorway leading to the stairwell was sealed off, thereby dividing the building in half. Floor drains were present on both sides of the building and were initially connected to the industrial drains (AOC 20). The drain in the western half of the building (containing the chemical mixing tanks) was later cut off and rerouted to the sludge drainpipe line (PG&E 1957a).

From 1969 to 1985, the former Permutit Precipitation Tank (SWMU 7) was used as the precipitation tank for the hazardous waste treatment system (CH2M 2007a). Therefore, it is also possible that this building may have been used to store chemicals or house incidental equipment associated with the hazardous waste treatment system. The chemicals used in the hazardous waste treatment system at this location consisted of sodium hydroxide, Poly Floc II, and ferric sulfate in the Precipitation Tank. No chemicals were known to have been added to the Process Pump Tank. No organic compounds were used in the water softening process.

4.2.19.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 23 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC23-1 predominantly comprises silty sand with gravel, with approximately 60% gravel up to 3 inches in diameter. The lithology changes at boring location AOC23-4, where the soil comprised poorly graded sand, with approximately 95% medium to coarse grained sand and 5% gravel up to 1 inch in diameter. Lithology was recorded to a maximum depth of 3 feet bgs at AOC 23.

Descriptions of debris observed in samples collected at AOC 23 are as follows:

- At boring location AOC23-2, debris consisting of metal straps and concrete pieces was observed in the upper 1.6 feet of soil.
- At AOC23-3, concrete debris was observed in the upper 0.5 foot of soil.

4.2.19.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-32a through 3-32i provide analytical results for AOC 23, and Figures 3-11a through 3-11b and Figures 3-12a through 3-12i show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.19.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 4 locations at depths from 0 foot to 3 feet bgs. The CSLs for CrVI and lead were exceeded at AOC23-3. The BK concentrations were exceeded for the following analytes:

- Cadmium
- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Nickel
- Zinc

The BK concentrations were exceeded at one or more of the following locations (Table 3-32a):

- AOC23-1
- AOC23-2
- AOC23-3
- AOC23-4

The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The analytes most frequently detected exceeding the BK levels were as follows:

- Copper was detected exceeding its BK value (16.8 mg/kg) in 4 samples between depths 0 foot and 3 feet bgs (Table 3-32a). The greatest copper concentration of 55 mg/kg was detected at sample location AOC23-3 at the surface to 0.5 foot bgs. A sample from location AOC23-3 was collected on the eastern side of the building (Figure 3-11b).
- Lead was detected exceeding its CSL (320 mg/kg) in 1 sample at 0 foot to 0.5 foot bgs and exceeding its BK value (8.39 mg/kg) in 3 samples at the surface to 0.5 foot bgs (Table 3-32a). The greatest lead concentration of 330 mg/kg was detected at sample location AOC23-3 at the surface to 0.5 foot bgs. A sample from location AOC23-3 was collected on the eastern side of the building.

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, except at AOC23-3, where CrVI and lead exceeded their respective CSLs.

The following analytes exceeded their respective BK concentrations, as shown in Table 3-32a:

- Cadmium
- CrT
- Copper
- Molybdenum
- Nickel
- Zinc

This was a surface sample, and refusal was reached at 1.1 feet bgs. This data gap is recommended to be considered for inclusion in the CMS/FS. The deepest sample at AOC23-4 had results that only slightly exceed the BK value for CrT, copper, and nickel, with a maximum FOE of 1.4 times the BK value and did not exceed RBCs. Concentrations at AOC23-4 are not considered a data gap requiring additional investigation.

Two additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC23-001 and TCS-OPP-AOC23-002). There were no BK or CSL exceedances.

CLP Inorganics: Samples were collected from 1 location, and no samples had detected results that exceeded their respective BK levels (Table 3-32b).

PAHs: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-32c). Two additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC23-001 and TCS-OPP-AOC23-002). There were no BK or CSL exceedances.

TPH: Samples were collected from 3 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-32d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected from 3 locations and were only sampled for pH, which has no CSLs or BK levels (Table 3-32e).

Pesticides: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-32f).

PCBs: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-32g). Two additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC23-001 and TCS-OPP-AOC23-002). There were no PCB detections.

Dioxins and Furans: Samples were collected from 3 locations at depths from 0 foot to 3 feet bgs (Table 3-32h). Dioxins and furans are evaluated by calculating TEQ values for human receptors. The CSL for TEQ human (220 ng/kg) was exceeded at AOC23-3, as shown in Table 3-32h. The concentration was 440 ng/kg at a depth of the surface to 0.5 foot bgs. A sample from location AOC23-3 was collected on the eastern side of the building.

The lateral and vertical extents of exceedances have been defined by samples with results less than CSLs or not detected exceeding reporting limits at all locations except at AOC23-3, where TEQ human exceeded the CSL. However, the lateral extent is defined within the TCS by samples less than CSLs or not detected exceeding reporting limits. This does not represent a data gap requiring further investigation.

Two additional samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC23-001 and TCS-OPP-AOC23-002). TEQ human concentrations were not calculated.

4.2.19.5 AOC 23 Conceptual Site Model

Figure 4-26 is a graphical CSM developed for AOC 23 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-33 presents the following information for AOC 23:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is discussed in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 23 are likely to be historical incidental spills of dry soda ash or lime, and water softening sludge. If sodium hydroxide, Poly Floc II, and ferric sulfate were stored in the building, incidental spills of these chemicals could also have occurred at AOC 23. The quantities of any materials released are unknown; however, the quantities are expected to be relatively small because spills of dry material would most likely have been contained in the building or cleaned up if needed, and spills of water softening sludge would similarly have been cleaned up. The use of oil as a dust suppressant is also a potential source of COPCs.

The presence of chromium at AOC 23 may be associated with water-softener sludge released in the area; based on data from the white powder material in AOC 14 (Section 4.1.7), the water-softening sludge might have contained low levels of CrT and CrVI. Other metals contamination may be from wear metals from industrial equipment onsite or associated with the water conditioning products. The greatest contaminant concentrations were detected at shallow soil sample location AOC23-3, located east of the Former Water Conditioning Building.

Sodium hydroxide spills would have been cleaned up quickly due to the acute danger posed by the chemical. Any releases of sodium hydroxide to soil would have raised the pH of the soil and thereby reduced the solubility of metals in the soil. If a large release of water softening sludge occurred, it could have resulted in water potentially containing some sludge reaching the storm drain system and being discharged outside the fence line. Because the area around the AOC was formerly unpaved, dry chemicals deposited on the soil could also have been entrained in stormwater runoff and been discharged outside the fence line. Releases from the storm drain system are addressed by the storm drain investigation program described in Section 4.3. Finally, while there is no information indicating that the concrete floor in the building lacked integrity in the past, it is possible that small cracks are present, and that small quantities of dissolved lime or soda ash may have been released to shallow soil directly beneath the building.

The primary source medium at AOC 23 is concrete within the building (the building floor). Secondary source media include surface soil adjacent to the building and shallow soil underneath the building. If any liquids were released in AOC 23, they would have been released to surface soil and could have infiltrated to shallow soil or been released to shallow soil directly. Liquids released to shallow soils could have infiltrated to deeper soils. Due to the high pH of the main chemicals used in the water softening process, release of the chemicals or sludge would have helped to fix any metals contained in the material and prevent migration.

Exhibit 4-33. Conceptual Site Model – AOC 23
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PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Potential incidental spills of water conditioning products **COPCs include:** • Metals • Dioxin and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker
Potential incidental spills associated with chemicals or equipment associated with the hazardous waste treatment system **COPCs include:** • Metals • Dioxin and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker

4.2.19.6 Evaluation of Data Against Data Quality Objectives for AOC 23

This section discusses the evaluation of data against DQOs for AOC 23.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density, except at sample location AOC23-3 where the vertical extent is not defined for the following analytes:

- CrVI
- Lead
- TEQ human

This vertical extent data gap at AOC23-3 shall be considered for inclusion in the CMS/FS. Tables 3-32a through 3-32h and on Figures 3-11a and 3-11b provide analytical results. Table 3-32i provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 7 samples were collected from four locations at depths ranging from 0 foot to 3 feet bgs for AOC 23. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- General chemistry
- Pesticides
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 23 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are covered by gravel, paved, or otherwise covered with an impermeable surface preventing migration of surface soil. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. One sample from AOC 23 was collected at AOC23-2, but the volume of sample was insufficient to run the ordered tests. Other samples were collected at nearby units, however, that can be used to support characterization of AOC 23. These samples were collected at

AOC5-2 and AOC8-1. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.2.20 AOC 24 – Stained Area and Former API Oil/Water Separator

This section provides details about AOC 24 – Former API OWS.

4.2.20.1 Setting

AOC 24 consists of the stained area near the former API OWS, which was located northeast of the former northern scrubbers, as well as the footprint of the OWS, as shown on Figure 2-2.

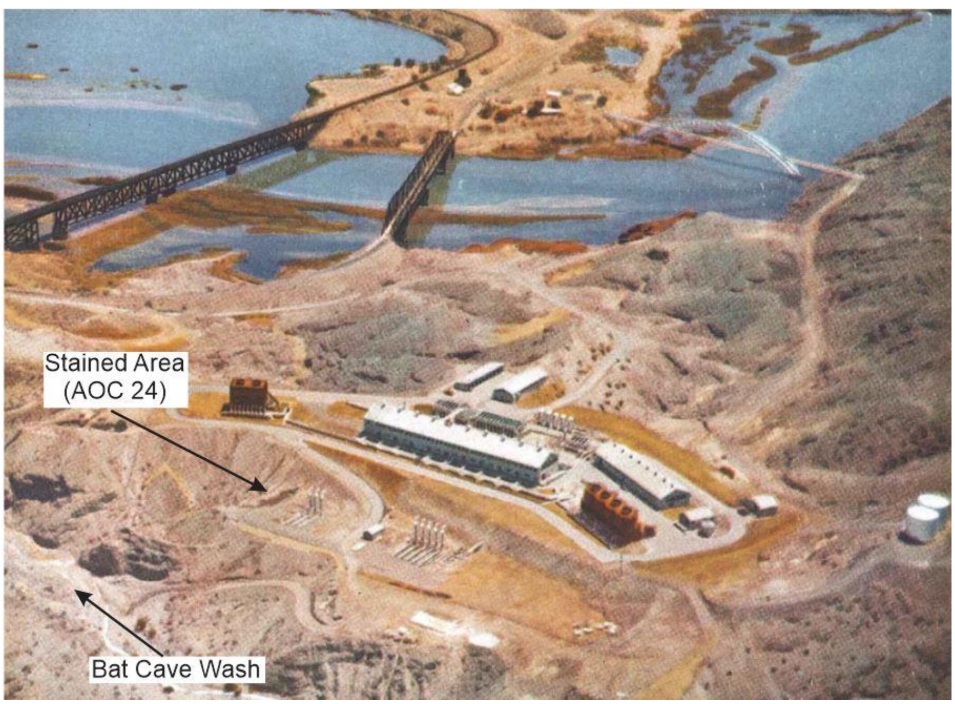
4.2.20.2 Unit History

The elongated area of staining is visible in a 1955 aerial photograph (Photograph 4.2.20-1) and a plant photo from between 1954 and1956 (Photograph 4.2.20-2). It appears that the staining came from a discharge emanating from the former OWS. The OWS was 14 feet long by 8 feet wide and had 1-foot-thick walls. It was 4 feet deep and had a 1-foot-thick concrete bottom (as shown on Figure 4-27a [PG&E 1970e]). The unit was installed during the initial construction of the TCS, and the actual discharge point of the effluent water appears to be shown on Photograph 4.2.20-3. However, the disposal process for the oil collected in the former OWS and the solid material removed from the bottom of the separator are not known. In approximately 1967, the OWS was moved to the southern portion of the lower yard and then became Unit 4.4 of the oily water treatment system. Discharges from the original OWS location in AOC 24 would also have ceased in approximately 1967 (CH2M 2007a).

Subsequent to the 1955 aerial photo, significant grading was performed in the lower yard near the former OWS. In late 1989, significant earth work was performed during the fill of the low area previously located north of the northern scrubbers. Based on the available information, portions of the fill north of the stained area may be as much as 40 to 45 feet deep (PG&E 1989b-c). Fill and grading activities were also performed during construction of the Transwestern Pipeline interconnection facilities.

Grading and fill activities may have dispersed, mixed, or buried the stained area near the former OWS, though burial is expected to be minimal because the filling was primarily done north of the stained area. The two borings advanced during the 2016 RFI investigation (to 3 feet and 6 feet bgs) are assumed to have been sufficient to reach a buried stained horizon. However, there is some uncertainty as to how steep of a slope the stained material was discharged from back in 1955, so the actual elevation of the 1955 stained horizon is not known with accuracy.

Photograph 4.2.20-1: May 19, 1955, Aerial Photograph 2, AOC 24
Note: Facing northwest. Elongated area of staining visible in AOC 24.



Photograph 4.2.20-2: Taken between 1954 and 1956 Aerial Photograph 1, AOC 24
Note: As found on an invitation from Needles Chamber of Commerce to a dinner on May 5, 1956, dedicated to PG&E. Oblique view to the east. Elongated area of staining visible in AOC 24.

Photograph 4.2.20-3: January 26, 1954, Construction Photograph, Oil/Water Separator Installation
Note: Facing southwest. Discharge line emanating from the OWS is visible in bottom right.

4.2.20.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 24 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

At AOC 24, two borings were advanced to a maximum depth of 6.2 feet bgs. The soil at AOC 24 comprised silty sand with gravel up to 4 inches in diameter. Stained soil or debris were not observed in the borings advanced at AOC 24.

4.2.20.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-33a through 3-33i provides analytical results for AOC 24. No results figures were developed for AOC 24 because each analyte had fewer than four exceedances. Figure 3-1 show the sample locations.

This section provides a discussion about the screening level exceedances. Section 4.2.20.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: Soil samples were collected from 4 locations at depths from 0 foot to 6 feet bgs. No CSLs were exceeded in AOC 24. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The BK values were exceeded only for CrVI and lead at 1 or more of the following locations (Table 3-33a):

- AOC24-1
- AOC24-OS1
- AOC24-OS2

Exceedances are described as follows:

- CrVI was detected exceeding its BK value (0.83 mg/kg) in 3 samples between depths 0 foot and 3 feet bgs (Table 3-33a). The greatest CrVI concentration of 1.2 mg/kg was detected at sample locations AOC24-1 from 2 feet to 3 feet bgs and AOC24-OS1 from 0 foot to 0.5 foot bgs. A sample from location AOC24-OS1 was collected north of the footprint of the formerly stained area and former location of the API OWS.
- Lead was detected exceeding its BK value (8.39 mg/kg) in 2 samples between depths 0 foot and 0.5 foot bgs (Table 3-33a). The greatest lead concentration 17 mg/kg was detected at sample location AOC24-OS2 at the surface to 0.5 foot bgs. A sample from location AOC24-OS2 was collected in the historical stained soil area.

The lateral extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits, except at AOC24-1, where the CrVI result in the deepest sample slightly exceeds BK concentrations by a FOE of 1.4 times the BK value. The CrVI concentration at AOC24-1 is less than the RBRG and does not pose an unacceptable risk to receptors; therefore, it is not considered a data gap requiring further investigation.

CLP Inorganics: Samples were collected from 1 location, and no samples had detected results that exceeded their respective BK levels (Table 3-33b).

PAHs: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-33c).

TPH: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-33d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected from 2 locations and were only analyzed for pH, which has no CSL or BK level (Table 3-33e).

Pesticides: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-33f).

PCBs: Samples were collected from 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-33g).

Dioxins and Furans: Samples were collected from 1 location, and no samples had detected results that exceeded their respective CSLs (Table 3-33h).

4.2.20.5 AOC 24 Conceptual Site Model

Figure 4-27b is a graphical CSM developed for AOC 24 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-34 presents the following information for AOC 24:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary source of metals and low levels of TPH contamination at AOC 24 is likely to be historical water discharge from the former OWS. The quantity of water released from the OWS is unknown. There is potential for the discharge to have been directed into a low area previously located north of the historical northern boundary of the lower yard and then to a low area in Bat Cave Wash. Due to the fill in northernmost portion of the lower yard, the affected area would now be covered by several to 10s of feet of additional soil.

The primary source medium at AOC 24 was surface soil. A potential secondary source medium at AOC 24 is shallow and subsurface soil. Liquids released to shallow soils could have infiltrated to deeper soils. Available information indicates that grading occurred around 1955 throughout AOC 24, and subsequently during the fill of the low area previously located north of the northern scrubbers, as well as during construction of the Transwestern Pipeline interconnection facilities. Grading activities may have led to the dispersal of contaminated soil around the area. Liquids would have been released to surface soil and infiltrated to shallow soil. Because the former stained area is covered with additional soil from the expansion of the lower yard, as shown on Figure 4-27b, runoff of contaminated previously exposed surface soil in rainwater is not considered a potential migration pathway. Windblown dust contamination from small particles of contaminated surface soil around AOC 24 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils.

COPCs in surface soil may be eroded and entrained in stormwater and surface water runoff and subsequently redeposited as contaminated soil in other downgradient areas. At AOC 24, this migration may result in COPCs in the lower yard migrating down the hillside into Bat Cave Wash and continuing down the flow path of Bat Cave Wash.

Exhibit 4-34. Conceptual Site Model – AOC 24
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human and Ecological Receptors
Potential discharge of water from former OWS **COPCs include:** • Metals • TPH	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Surface soil runoff, wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker • Recreational user • Tribal user • Hypothetical future groundwater user **Ecological:** • Plants • Invertebrates • Birds • Mammals

4.2.20.6 Evaluation of Data Against Data Quality Objectives for AOC 24

This section discusses the evaluation of data against DQOs for AOC 24.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-33a through 3-33i provide analytical results. Table 3-33j provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 9 samples were collected from 4 locations at depths ranging from 0 foot to 6 feet bgs for AOC 24. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH
- Pesticides
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 24 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Surface soil samples were collected in unpaved areas associated with AOC 24 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry
- Pesticides
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following analytes and equivalency factors:

- CrVI and lead were detected at concentrations exceeding ISLs. The greatest FOE was for lead, which exceeded the ISL (BK) of 8.39 at 2 of 4 locations, with a maximum concentration of 17 mg/kg at AOC 24-OS2.
- TEQ mammals exceeded the ISL (BK) of 5.58 ng/kg at 1 of 1 location at a concentration of 6.2 ng/kg at AOC24-2.

Table 3-39j summarizes the greatest exceedances and presents the greatest FOEs for each of the locations. The FOEs of CrVI and dioxin and furans are all 2 or less. Constituents exceeding the ISLs by these low FOEs within AOC 24 are not expected to migrate outside the fence line at concentrations that pose a threat to offsite receptors.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at AOC 24. Potential migration of contamination at depth from AOC 24 does not appear to be a source of contamination to downgradient Part A investigation units.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and nature and extent of these analytes have been evaluated as part of the applicable Part B units in Table 3-38 and in the risk assessment.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 24 were collected at AOC 24-2. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

Additional Considerations: There is some uncertainty in the exact location of the AOC 24 stained horizon.

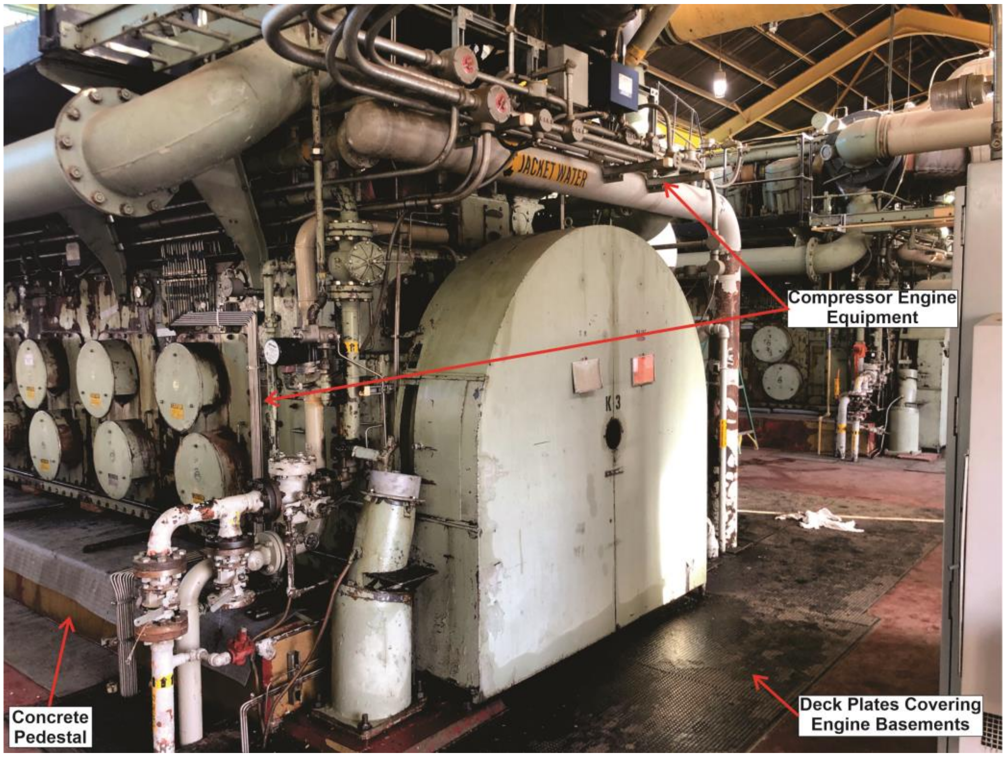
4.2.21 AOC 25 – Compressor and Generator Engine Basements

This section provides details about AOC 25 – Compressor and Generator Engine Basements.

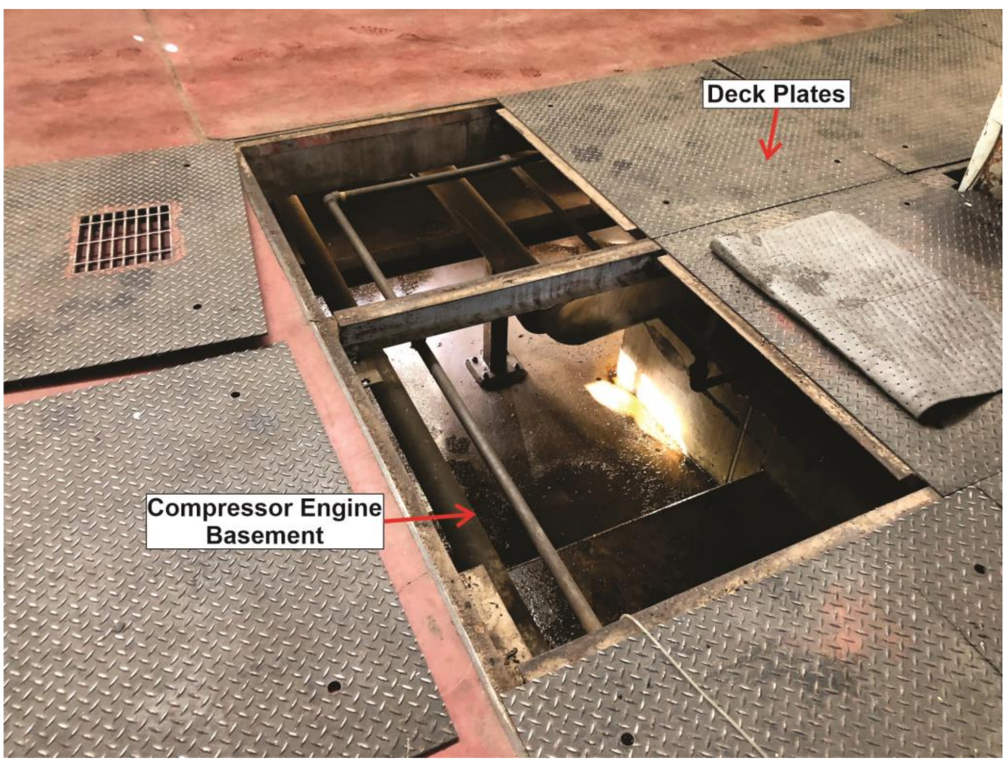
4.2.21.1 Setting

AOC 25 consists of the compressor and generator engine basements. Figure 2-2 shows the general locations of the buildings that comprise AOC 25. There are 10 compressor engines, 9 of which are still active, housed within the Compressor Building (Figure 4-28a shows the engine locations and engine number designations). The Auxiliary Building (also referred to as the Generator Building) houses 4 generator engines (Figure 4-28a). Figures 4-28b through 4-28e are scaled drawings of the Compressor Building. Figures 4-28f and 4-28g are scaled drawings of the Auxiliary Building.

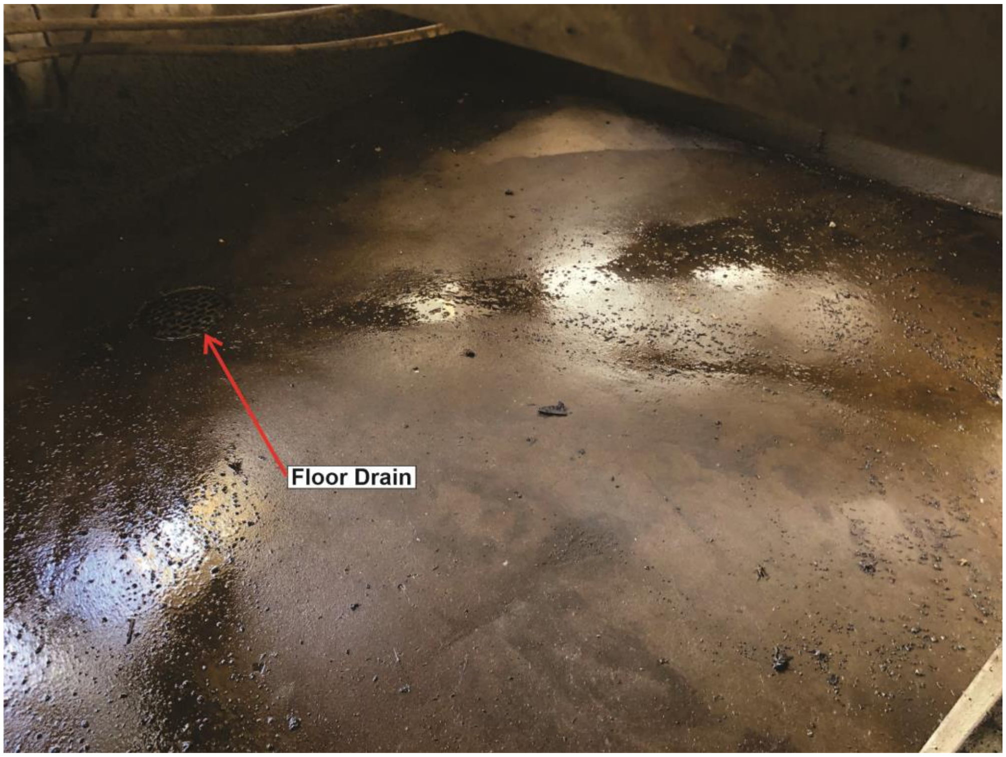
Each of the compressor engines is mounted on a concrete pedestal on a concrete foundation, as shown on Figure 4-28a and on Photograph 4.2.21-1. The pedestal is surrounded by a concrete trench. The trench around the pedestal is known as the basement (Photograph 4.2.21-2). Drips and leaks from the engines would discharge into the drains in the basements and enter AOC 20 (the industrial floor drains), as shown on Photograph 4.2.21-3. The basements have small openings (open air windows) to allow pipes to enter the basement. The compressor engine basement floors are located approximately 36 inches below the bottom of the windows. Each compressor basement is also equipped with two drains that are connected to the oily water treatment system.



Photograph 4.2.21-1: June 14, 2022, Equipment in Compressor Building at AOC 25
Note: Shows compressor engine equipment and deck plates covering engine basements



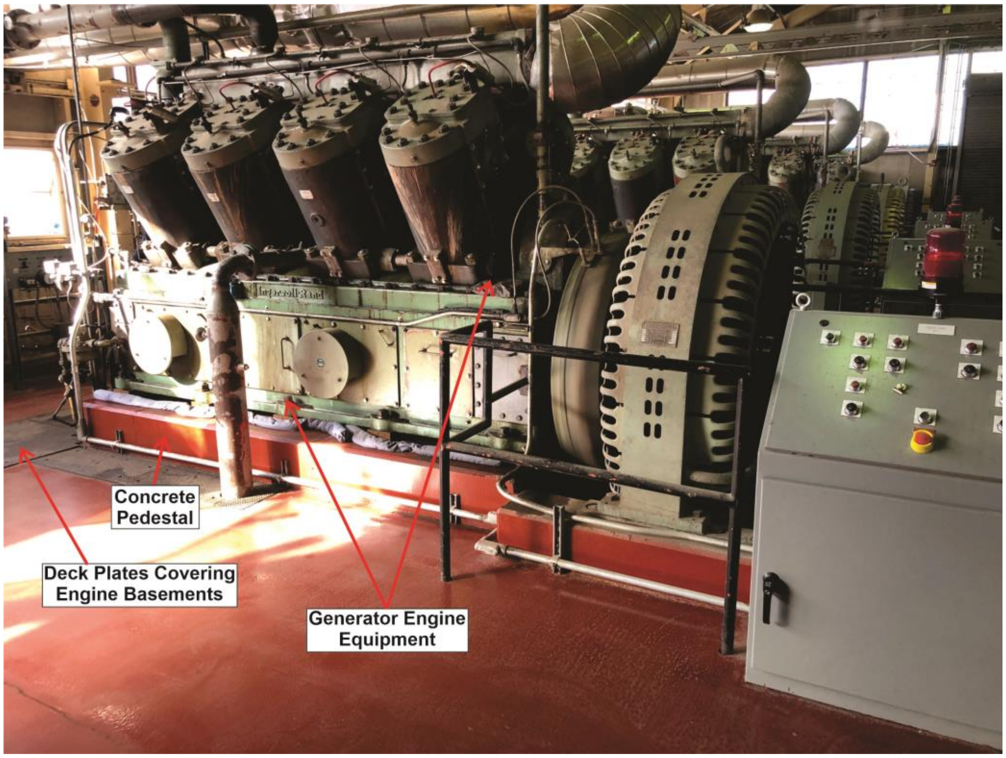
Photograph 4.2.21-2: June 14, 2022, Looking Down Into Engine Basement in the Compressor Building
Note: Piping in basement and basement floors are visible.



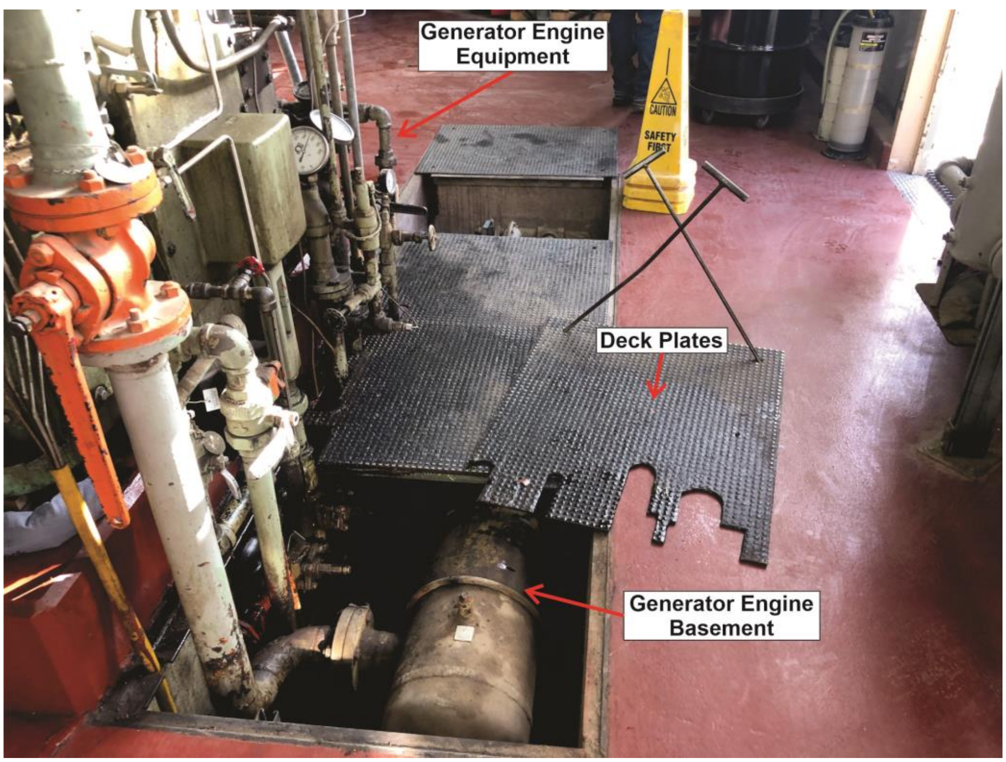
Photograph 4.2.21-3: June 14, 2022, Compressor Engine Basement.

Note: Shows drips and leaks from compressor engine discharging into basement and draining into floor drains.

The generators are equipped with basements similar to the compressors; however, the basements are present only on the southern and eastern sides of the generator engines and are shallower than the compressor engine basements (approximately 30 inches deep). The generator engines are also located on pedestals (Photograph 4.2.21-4). The pedestals are approximately 42 inches high measured from the bottom of the engine basement. The generator windows are level with the surrounding ground surface. Incidental drips and leaks from the generator engines that collect in the basements (shown on Photograph 4.2.21-5) would be discharged to drains connected to the oily water treatment system and could also leak out through the basement window. The ground surface adjacent to the generator engine basement windows was paved in the early 1990s (CH2M 2014a).



Photograph 4.2.21-4: June 14, 2022, Equipment in Auxiliary Building at AOC 25
Note: Generator engine equipment and deck plates covering engine basements.

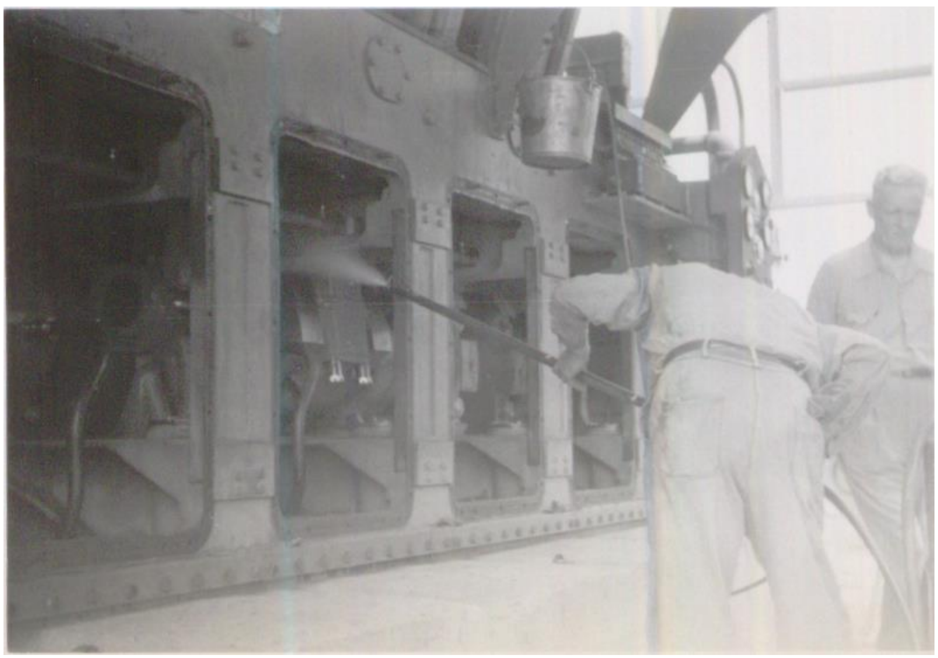


Photograph 4.2.21-5: June 14, 2022, Looking Down into Generator Engine Basement in the Auxiliary Building

4.2.21.2 Unit History

The types of liquids present in the compressor and generator engines are lubricating oil, cooling water, and solvents used to clean the engines (CH2M 2014a). Engine oil is the primary liquid used in the Compressor and Generator Buildings. There are no hydraulic transmissions in the Compressor or Generator Buildings; therefore, no transmission oil was used. Most the cooling water used in the buildings were used in the JCW system that circulates water through the engine cooling jackets. Cooling water is also circulated through the aftercooler system (also known as an intercooler system), which cools combustion air that has been heated by the turbo chargers used to provide compressed air to the engines. The water in these cooling systems contains chemicals to inhibit corrosion and scaling of heat transfer surfaces.

Solvent was used historically to clean engines, as can be seen on Photograph 4.2.21-6. The solvent would have discharged into the drains in the basements and entered AOC 20 (the industrial floor drains). Solvents are no longer used to clean the engines and are only used in small amounts to clean parts. The engines are now cleaned using heated high-pressure washers. Cleaning detergents are sometimes used with the pressure washers.



Photograph 4.2.21-6: August 1, 1951, Construction Photograph, Engine Cleaning
Note: Cleaning interior of engine with solvent spray.

The types and compositions of the oils and solvents used likely varied over time. Drips and leaks from the engines would discharge into the drains in the basements and enter AOC 20 (the industrial floor drains). When the lubricating oil is drained from the compressor or generator engines during engine maintenance, it is, and historically has been, drained directly to a holding tank through piping specifically installed for that purpose. Cooling water was contained in a closed-loop system. When this system was drained, the water was combined with the oily water and was routed to the oily water treatment system. The oily water treatment system effluent was then combined with the cooling tower blowdown.

Currently, the cooling water is still drained to the oily water treatment system through the industrial drains. The engine basements are cleaned periodically to remove surface coatings of oil; the cleaning water is also allowed to drain to the oily water treatment system.

Concrete sampling of select compressor pedestals was conducted in 1990 to evaluate cracks in the concrete pedestals. The sampling indicated that oil saturation was present to depths of 10 to 30 inches into the top of the concrete, with the deeper penetrations occurring at the location of the cracks. The concrete sampling work was performed to assist with the selection of future pedestal replacements (CH2M 2014a).

Pedestals have been repaired at the following engines (Figure 4-28a):

- Compressor Engine 1
- Compressor Engine 3
- Compressor Engine 5
- Compressor Engine 6
- Compressor Engine
- Compressor Engine 8
- Compressor Engine 9
- Compressor Engine 10

The pedestals were repaired between the late 1980s and 2004. The original pedestals were removed only to the point required to reach competent concrete; the new concrete was then tied into the existing concrete (CH2M 2014a).

PG&E has taken various steps to minimize leakage into the compressor engine basements. For example, historical information indicated that oil leakage from the compressor engines was cleaned up by plant staff daily. In 1971, new mechanical valve seals were installed to minimize the leakage. Similarly, in 1968, PG&E upgraded pipe joints from the cooling-water headers to the compressor engines to minimize the potential for cooling-water leaks prior to increasing the operating pressure of the cooling-water system (PG&E 1971).

Similar to the compressor engines, the generator engine foundations were also tested (PG&E 1992). Oil penetration and decomposing concrete were noted at the four generator engines at TCS. The generator engine pedestals were repaired between 2001 and 2007 in the same way as the compressor engine pedestals (CH2M 2014a).

Surface and shallow subsurface Site investigation and soil removal have been conducted in areas immediately adjacent to the Auxiliary and Compressor Buildings (in AOC 13).

In June 2022, widespread oil staining was observed in the compressor engine basements, with sporadic accumulation of oil in some areas. Oil staining in the compressor engine basements is shown on Photograph 4.2.21-7 and is also visible in Photograph 4.2.21-2, and oil is also shown draining to the floor drains on Photograph 4.2.21-3. Oil staining was also observed in the generator engine basements to an apparently lesser extent than in the compressor engine basements.

Photograph 4.2.21-7: June 14, 2022, Oil Staining and Accumulation in a Compressor Engine Basement.

4.2.21.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 25 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

Soil borings and vacuum excavation holes were advanced around the perimeter of AOC 25 as a part of the AOC 13 investigation. The soil adjacent to AOC 25 was fill comprising sand with gravel to silty sand with gravel up to 3 inches in diameter. Lithology was recorded to a maximum depth of 4 feet bgs in the borings advanced in the immediate perimeter of AOC 25.

4.2.21.4 Analytical Results

This section provides details about the soil investigation and soil gas investigation at AOC 25 – Compressor and Generator Engine Basements.

Soil Investigation

Due to substantial access constraints, active use of buildings, utilities, and physical dangers, soil samples were not collected from within the Compressor Building or Auxiliary Building. Soil data will be collected when AOC 25 becomes available for sampling. Sampling procedures will follow regulatory guidance at the time of sampling. Samples were collected from areas around the buildings and are reported and evaluated as part of AOC 13.

Two samples were collected as part of groundwater remedy implementation (TCS-OPP-AOC25-001 and TCS-OPP-AOC25-002). There was an exceedance of the BK lead concentration; there were no other BK or CSL exceedances.

Soil Gas Investigation

Due to substantial access constraints, active use of buildings, utilities, and physical dangers, soil gas samples were not collected from within the Compressor Building or Auxiliary Building. Soil gas data will be collected when AOC 25 becomes available for sampling. Soil gas vapor probes were installed at locations outside buildings at AOC13-5, AOC13-6, and AOC13-11 to assess AOC 25 because sampling was not feasible inside the buildings. Installation and sampling details are described in Appendix B, Attachment B7. Soil gas samples were collected from 2 feet to 3 feet bgs in January 2016 and February 2017. Table 3-23k provides results, which are discussed with AOC 13 (Section 4.2.10). Data gaps were identified for soil gas.

4.2.21.5 AOC 25 Conceptual Site Model

Figure 4-28a is a graphical CSM developed for AOC 25 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-35 presents the following information for AOC 25:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is discussed in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 25 are likely to be small-scale historical liquid discharges from the compressor and generator engines, including small quantities of lubricating oil, cleaning fluids, and coolant. The estimated annual flow of oily wastewater was 220,000 gallons in 2007 (CH2M 2007a); a portion of this total derives from the drains in the Compressor and Auxiliary Buildings. The construction of the compressor basements largely precludes releases of fluids from the basements to the soil adjacent to the buildings. However, releases from the basement cannot be assessed without analytical data, which will be collected in the future when AOC 25 is decommissioned. Only if there had been massive failure of an engine or a cooling water line would large quantities of liquids have been generated and had the potential to overflow out of the compressor basement to areas adjacent to the buildings. There are no records of these types of events.

Unlike the compressor basements, the generator engine basements would have been more likely to have leaked oily water and cooling liquid to the area immediately outside the building because the bottoms of the windows were at the same level as the basement floors. Stained soil was removed from this area, and the area was subsequently paved with concrete.

The primary source media at AOC 25 are surface soil, shallow soil, and concrete. Liquids released to the drains could have entered shallow soils at breaks in the oily water system pipelines; from shallow soil, the liquid could have infiltrated to deeper soils. Leaks to surface soil outside the generator engine basements could have infiltrated to shallow soil; from shallow soil, the liquid could have infiltrated to deeper soils. Liquids released to the basements could also have impacted the concrete, which is not an impervious barrier that would prevent releases within the basements from reaching the environment. Liquids released to the concrete could have penetrated cracks in the foundation and could have entered surface and shallow soil underneath the basements. However, the concrete is between 24 and 114 inches thick (Figure 4-28d) and is steam cleaned periodically. Because the entire potential surface soil source area is covered by concrete or asphalt, runoff of contaminated surface soil is not considered a potential migration pathway.

Exhibit 4-35. Conceptual Site Model – AOC 25
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PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Potential historical liquids discharges (spills) and leaks **COPCs include:** • TPH • Metals • VOCs • PAHs • Dioxins and furans	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion and enclosed space accumulation[a]	**Human:** • Maintenance worker • Commercial worker

[a] Enclosed space accumulation refers to any area where vapor can accumulate.

4.2.21.6 Evaluation of Data Against Data Quality Objectives for AOC 25

This section discusses the evaluation of data against DQOs for AOC 25.

Decision 1 (Nature and Extent Determination): Deferred. Due to substantial access constraints, active use of buildings, and physical dangers, samples were not collected in AOC 25. Soil data will be collected when areas become available.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No sampling was conducted at AOC 25 because it is an active unit, and sampling the unit would not be possible without compromising the integrity of the secondary containment. Instead, samples were collected around the Compressor and Auxiliary Buildings at AOC 13.

EPCs inside the fence line were calculated based on all data collected within the fence line and were not calculated on a unit by unit basis. Data were sufficient for calculating EPCs for inside the TCS. EPCs will be evaluated in the future when the TCS is decommissioned.

Decision 3 (Threat to Groundwater Determination): Deferred.

Current or potential threat to groundwater was not evaluated because samples were not collected at AOC 25. Threat to groundwater will be evaluated in the future after soil data are collected at AOC 25.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 25 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are paved or otherwise covered with an impermeable surface. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Deferred. CMS/FS and IM decisions for AOC 25 are deferred until the unit becomes available for sampling.

4.2.22 AOC 26 – Former Scrubber Oil Sump

This section provides details about AOC 26 – Former Scrubber Oil Sump.

4.2.22.1 Setting

AOC 26 is the location of the former Scrubber Oil Sump located in the lower yard south of the former South Scrubbers, as shown on Figure 2-2 and Figures 4-29a through 4-29d. The scrubber sump consisted of an underground concrete structure with three compartments, each measuring 5 feet wide by 5 feet long (including walls) by 4 feet deep.

4.2.22.2 Unit History

The Scrubber Oil Sump received pipeline liquids removed from two banks of natural gas scrubbers, as well as oil from the oil bath filters (until the filters were taken out of service in the 1960s). When the northern compartment of the scrubber sump filled up, the pipeline liquids were either transferred to one of the other two compartments or were pumped directly to the waste-oil sump (Trident 1996c). The scrubber sump was removed in 1996 as part of an upgrade to the waste oil system. Figure 4-29e is an engineering drawing of the former Scrubber Oil Sump (CH2M 2014a).

Closure of the sump consisted of the following steps:

- Piping was emptied, disconnected, and capped at abandoned ends.
- Residual liquid was removed from the sump by vacuum.

- Oily sludge in the sump was removed, placed into 55-gallon drums, and disposed of at a Class I landfill as non-RCRA hazardous waste.
- The sump was steam-cleaned after removal of the liquids, and sludge and was completely removed from the Site.
- Discolored soil was excavated and stockpiled.
- Stockpiled soils were analyzed for the following analytes:
  - California Assessment Manual 17 metals
  - TPH using EPA Method 418.1
  - Benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 5030/8020
- The sludge within the sump was also analyzed for PCBs.
- Additional soil excavation was performed, and 4 initial confirmation samples were collected at 6 feet bgs and were analyzed for TPH using EPA Method 418.1.
- Supplemental excavation was conducted to 10 bgs, and 4 additional soil samples were collected.

Although TPH was present in the bottom of the excavation, safety considerations precluded further extending or deepening the excavation. High-pressure gas pipelines are present to the south and west of the excavation area, and the scrubber oil pump foundation and enclosed electrical conduits are present to the north. The electrical conduits prevented removal of the pump foundation. Increasing the depth of the excavation beyond 10 feet bgs was not possible due to the proximity of the high-pressure gas lines and pump foundation. Upon receipt of the closure certification report, the County of San Bernardino requested further delineation of the residual contamination (sidewall samples) and additional data for metals (CH2M 2014a).

To further assess the extent of the remaining contamination, platforms were constructed at the corners of the excavation to allow use of a hand sampling tool without having workers enter the excavation. The success of the hand sampling was limited by the very rocky soil encountered in the bottom of the excavation; soil samples were successfully obtained from 4 locations ranging from 10.4 feet to 11 feet bgs; at 2 locations, 2 soil samples were collected. Although there was residual contamination, closure of the scrubber sump was proposed based on leaking underground fuel tank manual criteria, including low rainfall and depths to groundwater exceeding 100 feet, which led to the conclusion that the residual petroleum contamination did not pose a threat. The results of the additional sampling were submitted in an addendum to the closure certification report (Trident 1996d).

The conclusions presented in the closure certification report remained the same (Trident 1996d). On January 16, 1997, Ecology and Environment, Inc. (E&E), conducted a deeper soil investigation; the investigation report indicates that it was completed in accordance with the scope of work reviewed by the County of San Bernardino. Five borings were installed to a maximum depth of 40 feet bgs. Hydrocarbon impacts to soil were present to approximately 35 feet bgs. The results of this investigation indicated there was little lateral spreading of hydrocarbons; rather, they migrated vertically to 35 feet to 40 feet bgs. Consistent with the Trident Environmental Consultants (Trident) reports, E&E reported that the sump and surrounding impacted soils were removed to 10 feet bgs. E&E also indicated the excavation backfilled with clean material (E&E 2002).

4.2.22.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for AOC 26 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at AOC 26 comprises a unit of poorly graded sand with gravel up to 2 inches in diameter from approximately 0 foot to 9 feet bgs. At AOC26-1, a unit of sand with silt, with approximately 5% gravel, 75% sand, and 20% fines was observed from 9 feet to 76.5 feet bgs. Lithology was recorded to a maximum depth of 76.5 feet bgs at AOC 26.

Debris observed in samples collected at AOC 26, and associated contamination, was a 6-inch steel pipe encountered at approximately 7 feet bgs at boring AOC26-2.

4.2.22.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-34a through 3-34i provide analytical results for AOC 26, and Figures 3-10a through 3-10h show sampling locations and results.

This section provides a discussion about the screening level exceedances. Section 4.2.22.5 provides a discussion about following topics:

- Nature and extent of contamination
- Contaminant sources
- Fate and transport of contamination
- Evaluation of results against the DQOs

Metals: During the RFI/RI, additional soil samples were collected from 5 locations at depths from 0 foot to 75 feet bgs. No CSLs were exceeded in AOC 26. The CSL for arsenic is less than BK; therefore, arsenic results are only screened against the BK value. The BK concentrations were exceeded for the following analytes:

- CrT
- Cobalt
- Copper
- Lead
- Molybdenum

These analytes were exceeded at one or more of the following locations (Table 3-34a):

- AOC26-1
- AOC26-2
- AOC26-3
- AOC26-4
- SS-NE

The analytes most frequently detected exceeding the BK levels were as follows:

- Lead was detected exceeding its BK value (8.39 mg/kg) in 5 samples between depths 0 foot and 10.5 feet bgs (Table 3-34a). The greatest lead concentration of 19 mg/kg was detected at sample location AOC26-4 at the surface to 0.5 foot bgs. A sample from location AOC26-4 was collected on the southern side of the former scrubber oil sump (Figure 3-10e).
- Molybdenum was detected exceeding its BK value (1.37 mg/kg) in 3 samples between depths 2 feet to 10 feet bgs (Table 3-34a). The greatest molybdenum concentration of 2.3 mg/kg was detected at sample location AOC26-2 at 5 feet to 6 feet bgs. A sample from location AOC26-2 was collected on the northern side of the former scrubber oil sump.

The lateral extent of the exceedances has been defined by samples with results less than BK concentrations or not detected exceeding reporting limits. The vertical extent of the exceedances has been defined by samples with results less than BK levels or not detected exceeding reporting limits except at AOC26-1. The deepest sample at AOC26-1 (74 feet to 75 feet bgs) had results for the following analytes that slightly exceeded their respective BK values:

- CrT
- Cobalt

- Copper
- Nickel

These concentrations are less than CSLs and RBCs and do not pose an unacceptable risk to receptors; additionally, the soil is not available to receptors, as the sample depth is 74 feet to 75 feet bgs. Although concentrations increase with depth, this is not considered a data gap that requires filling because the increasing concentrations are more likely related to changes in soil type at depth rather than contamination. It should also be noted that there are no detections of other COPCs (VOCs and TPH) in the soil matrix below 25 feet bgs.

CLP Inorganics: CLP inorganics were not a COPC for this unit; therefore, samples were not analyzed for CLP inorganics.

PAHs: Samples were collected at 5 locations. PAHs were detected at low levels at AOC26-1 through AOC26-4, but no samples had detected results that exceeded their respective CSLs (Table 3-34b).

TPH: Samples were collected at 5 locations at depths from 0 foot to 75 feet bgs (Table 3-34d). No BK concentrations have been established for TPH. The CSLs for TPH-d were exceeded at AOC26-1 and AOC26-5, as shown in Table 3-34d. The greatest TPH-d concentration of 3,100 mg/kg was detected at sample location AOC26-1 at 24 feet to 25 feet bgs. A sample from location AOC26-1 was collected in the center of the former scrubber oil sump. TPH-d was not detected in soil samples collected from AOC26-1 at 49 feet to 50 feet bgs and 74 feet to 75 feet bgs.

The lateral and vertical extents of the exceedances have been defined by samples with results less than CSLs or nearby samples.

VOCs and SVOCs: Samples were collected from 5 locations. VOCs and SVOCs were detected at low levels at AOC26-1 from 24 feet to 25 feet bgs, but no samples had detected results that exceeded their respective CSLs (Table 3-34c). VOCs were not detected in AOC26-1 in samples collected from 49 feet to 50 feet bgs and 74 feet to 75 feet bgs.

General Chemistry: Samples were collected from 5 locations and were only sampled for pH, which has no CSL or BK level (Table 3-34e).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 5 locations. PCBs were detected at all locations, but no samples had detected results that exceeded their respective CSLs (Table 3-34g).

Dioxins and Furans: Samples were collected from 2 locations. Dioxins and furans were detected at both locations, but no samples had detected results that exceeded their respective CSLs (Table 3-34h).

Additional Investigation: VOCs in Soil Gas: In addition to the soil samples discussed previously, soil gas vapor probes were installed and sampled as described in Appendix B and Attachment B7. Soil gas samples were collected from AOC26-1 at 5 feet to 6 feet, 24 feet to 25 feet, and 49 feet to 50 feet bgs to assess nature and extent of VOCs in the subsurface. The presence of multiple underground utilities, including high-pressure gas pipelines to the south and west of the former scrubber sump excavation area, limited available boring locations. Soil gas samples were collected as a characterization tool to assess deeper subsurface soil conditions. Soil vapor probes were installed within the center of the zone of greatest impacts, at the location beneath the former scrubber oil sump.

Soil gas samples were collected from this location in January 2016 and February 2017. Table 3-34f provides results. All soil gas concentrations were less than commercial/industrial DTSC-SLs for the soil gas to indoor air vapor intrusion pathway. Results are as follows:

- Results from the January 2016 sampling event: The following analytes were detected in soil gas samples (Table 3-34f):
  - Benzene
  - Carbon tetrachloride
  - 1,3-Dichlorobenzene
  - Acetone
  - Carbon disulfide
  - Chloromethane
  - MEK
  - PCE
  - Ethylbenzene
  - Toluene

  Acetone and MEK are frequently detected lab contaminants.

- Results from the February 2017 sampling event: The following analytes were detected in soil gas samples (Table 3-34f):
  - Benzene
  - Carbon tetrachloride
  - 1,1-Dichloroethene
  - Acetone
  - Carbon disulfide
  - Chloromethane
  - MEK
  - PCE
  - Ethylbenzene
  - Toluene
  - Xylenes

  Acetone and MEK are frequently detected lab contaminants.

Concentrations were also compared to currently proposed commercial/industrial DTSC-SLs that are calculated with a draft attenuation factor of 0.03 (DTSC and WRCBs 2023). Concentrations of the following analytes exceeded the proposed screening levels:

- Benzene
- Carbon tetrachloride
- Chloroform
- PCE

Multiple VOCs were not detected, but the detection limits exceeded the screening levels. The detection limit for one VOC, 1,2-dibromoethane, consistently exceeded the 2023 screening level. Several VOCs were detected in the deepest sample horizon (50 feet to 60 feet bgs).

Due to construction in the area around AOC 26, and the addition of gravel across the AOC 26 area, the existing soil vapor probes were unable to be located in 2020; therefore, additional soil vapor samples cannot be collected. The lateral and vertical extents of the vapor plume for AOC 26 have not been defined. Further lateral and vertical delineation of soil vapor within AOC 26 and outside of the area is deferred until the area becomes available for sampling.

The potential for vapor intrusion will be reevaluated before construction of enclosed structures in this area and after the additional delineation has been conducted. Groundwater assessment and monitoring may be needed, depending on the vertical extent of vapor contamination; however, as noted in the Threat to Groundwater Modeling memo (Appendix C), the presence of organics in soil gas does not result in a future threat to groundwater.

4.2.22.5 AOC 26 Conceptual Site Model

Figures 4-29a through 4-29d are a graphical CSM and cross sections developed for AOC 26 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-36 presents the following information for AOC 26:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is discussed in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 26 are likely to be incidental spills or leakage at fittings during transfer of the accumulated pipeline liquids, as well as potential leaks through the bottom of the sump. The quantity of pipeline liquids released from the scrubber sump is unknown; however, as documented previously (Trident 1996c, 1996e; E&E 1997), releases from the sump occurred because contamination was present in and below the excavation. The presence of TPH in soil samples and VOCs in soil gas samples in consistent with the release of hydrocarbons from AOC 26.

Soil vapor samples collected from 24 feet to 25 feet bgs were compared to commercial/industrial DTCS-SLs for the soil gas to indoor air pathway using the draft attenuation factor of 0.03. Concentrations of benzene and PCE exceed the screening values. Soil gas concentrations in the shallow sample (5 feet to 6 feet bgs) demonstrate significant attenuation of soil vapor to less than screening levels for existing Site conditions. Historical scrubber sump soil remediation and backfill of clean soil in the top approximately 20 feet is consistent with the concentration attenuation in shallow samples.

The primary source medium at AOC 26 is subsurface soil. Residual contamination is present to approximately 35 feet bgs (CH2M 2013a). Soil samples collected from the core of the release at 50 feet and 75 feet bgs confirm the vertical extent of TPH is limited to above 50 feet bgs.

4.2.22.6 Evaluation of Data Against Data Quality Objectives for AOC 26

This section discusses the evaluation of data against DQOs for AOC 26.

Decision 1 (Nature and Extent Determination): Nature and extent in soil have been sufficiently defined laterally and vertically given laboratory results and current data density. The lateral and vertical extents of the vapor plume for AOC 26 have not been defined. Additional soil gas sampling is deferred until the unit becomes available for sampling. The potential for vapor intrusion will be reevaluated before construction of enclosed structures in this area and after the additional delineation of the vapor plume has been conducted.

Tables 3-34a through 3-34h and Figures 3-10a through 3-10h provide analytical results. Table 3-34i provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 21 samples were collected from 5 locations at depths ranging from 0 foot to 75 feet bgs for AOC 26. The samples were analyzed for one or more of the following analytes:

- Metals
- PAHs
- VOCs
- SVOCs
- TPHs
- General chemistry
- PCBs
- Dioxins and furans

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions. Soil samples collected from the core of the release area confirm impacts to vadose zone are limited to above 50 feet bgs. The depth to groundwater at this location is approximately 140 feet bgs.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 26 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as concentrations are close to BK and not a threat to offsite receptors.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples from AOC 26 were collected at AOC26-1. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

Exhibit 4-36. Conceptual Site Model – AOC 26
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Incidental spills and releases from former sump **COPCs include:** • TPH • VOCs	• Surface soil	• Percolation • Infiltration	• Surface soil • Shallow soil • Deep soil	• Wind erosion and atmospheric dispersion of surface soil • Potential volatilization and atmospheric dispersion	**Human:** • Maintenance worker • Commercial worker

4.2.23 AOC 32 – Oil Storage Tanks and Waste Oil Sump

This section provides details about AOC 32 – Oil Storage Tanks and Waste Oil Sump.

4.2.23.1 Setting

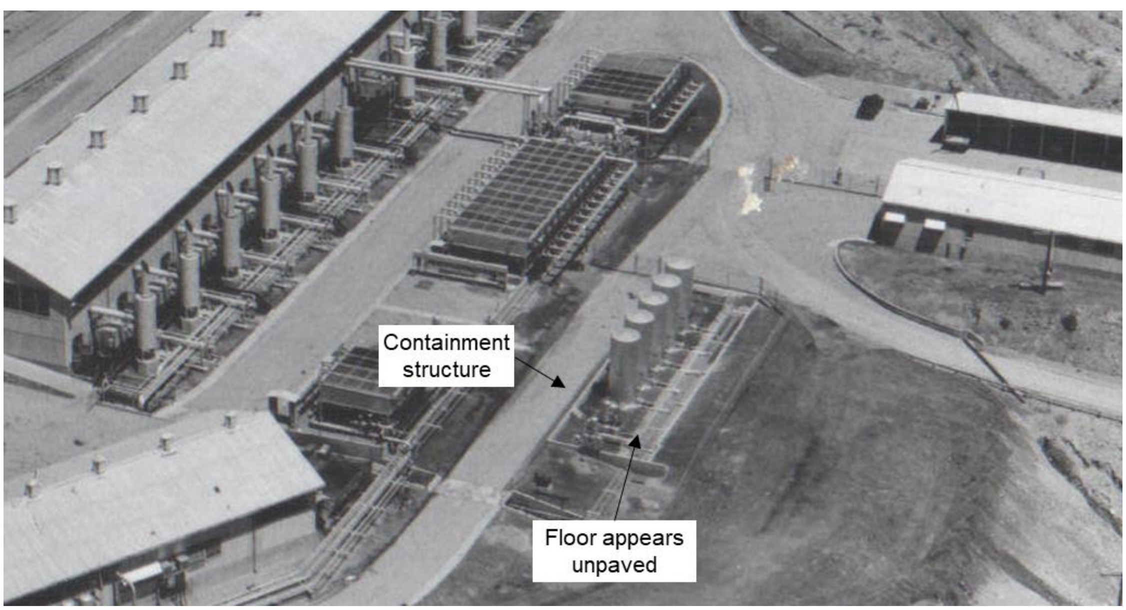
AOC 32 is the oil storage area in the upper yard immediately west of the visitor parking lot, as shown on Figure 2-2 and Figure 4-30a. AOC 32 contains five 7,150-gallon-capacity oil storage tanks, the steel-lined concrete waste oil sump, and two 150-gallon-capacity lubricating oil surge tanks. The oil storage tanks and waste oil sump are part of the original TCS installation. Four of the five storage tanks contain clean (makeup) oil for the main compressor engines and generator engines. The fifth tank contains waste oil that is removed regularly by a contractor. The waste oil sump receives waste oil from the OWS, pipeline liquids collected from the scrubbers, and formerly received used oil from the scrubber sump. The waste oil sump discharges to the oily water treatment system (CH2M 2014a).

The oil storage tanks and waste oil sump, along with associated piping, are located within a concrete secondary containment structure. The bottom of the containment structure is located approximately 16 inches below the surrounding grade, and the sides of the containment structure are approximately 5 inches to 8 inches above the surrounding grade. The bottom of the pipe trench located in the containment structure, along the eastern side, is approximately 1 foot below the bottom of the main portion of the containment structure.

A CB is located in the southeastern corner of the secondary containment structure. This CB is piped to the waste oil sump in the pipe trench south of the oil storage tank area. In addition, a pipe connection exists from the CB to the storm drain line in the area. The valve leading to the storm drain line is closed and locked (chained) shut.

4.2.23.2 Unit History

The sidewalls of the secondary containment structure are apparent in a 1955 aerial photograph (Photograph 4.2.23-1). It appears that the floor of the oil storage area may have been unpaved at this time. It appears from the same photo and a 1951 photograph (Photograph 4.2.23-2) that the tanks were mounted on foundations.



Photograph 4.2.23-1: May 19, 1955, Aerial Photograph 2 (cropped), AOC 32
Note: Facing northwest. Concrete containment structure around AOC 32 visible; floor appears unpaved.

Photograph 4.2.23-2: April 17, 1951, Foundation of an Oil Storage Tank at Installation.

In 2023, the bottoms of the tanks appear to be set level with the floor of the containment structure (Photographs 4.2.23-3 and 4.2.23-4). The containment structure appears to be in good repair and also appeared to be in good condition during an engineering inspection in 1994. In 1994, a registered civil engineer evaluated the condition of the concrete containment for the oil storage tanks and rated it as being in good to excellent condition, suitable for use as secondary containment. Minor surface cracks were determined to be unlikely to penetrate the concrete. Therefore, the letter concludes that it would be unlikely that an oil spill would penetrate through the containment (Trident 1996e).

Photograph 4.2.23-3: August 21, 2012, Oil Storage Tanks and Concrete Containment
Note: Facing west.

Photograph 4.2.23-4: August 21, 2012, Tanks, Containment, and Trench
Notes: Facing south. Photo includes the pipe trench on the eastern side.

The waste-oil sump consists of a steel tank within a concrete liner; the steel tank was installed into the existing waste-oil sump in 1996 (Trident 1996e).

The dimensions of the steel liner inside the concrete waste oil sump are as follows:

- The diameter of the stainless-steel liner in the concrete sump is 53 inches.
- The depth of the stainless-steel liner in the concrete sump is 111 inches.
- The wall thickness of the stainless-steel liner in the concrete sump is 0.25 inch.
- The volume of the stainless-steel liner in the concrete sump is 1,061.6 gallons.

The dimensions of the concrete waste oil sump are as follows:

- The outside dimensions of the concrete sump are 72 inches by 72 inches.
- The wall thickness of the concrete sump is 6 inches.
- The inside dimensions of the concrete sump are 60 inches by 60 inches.
- The depth of the concrete sump is 115 inches.
- The volume of the concrete sump is 1,791.7 gallons.

Figure 4-30b is a scaled engineering drawing of the waste oil sump and tank farm.

4.2.23.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. Due to access constraints, no borings were advanced, and no lithology information was collected at AOC 32. Descriptions for surrounding areas provide lithologic information near AOC 32. Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

4.2.23.4 Analytical Results

This section provides details about the soil investigation and soil gas investigation at AOC 32 – Oil Storage Tanks and Waste Oil Sump.

Soil Investigation

Due to substantial access constraints, active use of buildings, and physical dangers, samples were not collected from within AOC 32. Soil data will be collected when areas become available for sampling.

Soil Gas Investigation

Soil gas vapor probes were installed at location AOC13-16 to assess AOC 32, as soil sampling was not feasible. Appendix B, Attachment B7 provide installation and sampling details. Soil gas samples were collected from AOC 13-16 at 2 feet to 3 feet bgs in January 2016 and February 2017. Results are presented in Table 3-23k and discussed with AOC 13 (Section 4.2.10). Additional soil gas sampling is deferred until the unit becomes available for sampling.

4.2.23.5 AOC 32 Conceptual Site Model

Figure 4-30a is a graphical CSM developed for AOC 32 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-37 presents the following information for AOC 32:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b):

- Migration pathways
- Exposure media
- Exposure routes
- Potential human receptors

The primary sources of contamination at AOC 32 are likely to be incidental releases of new and waste oil stored in this area. The potential type and quantity of any oil released in the vicinity this AOC are unknown. The primary source medium at AOC 32 appears to be concrete or asphalt (if releases occurred to outside the secondary containment). Oil released in AOC 32 would have been released primarily to concrete. Concrete is not an impervious barrier; additionally, if the concrete lacked integrity, oil could have been released to surface soils underlying the concrete. If the bottom of the unit was unpaved or if releases occurred outside the secondary containment in earlier times, surface soil could also have been a primary source medium.

Any oil that entered surface soil could have infiltrated to shallow soil. Oils released to shallow soils could have infiltrated to deeper soils. If surface soil was previously exposed within this area, organic constituents in surface soils could have been degraded by heat and light. Because this unit is now entirely covered with concrete and located within secondary containment, surface soil runoff and wind dispersion are not potential migration pathways.

Exhibit 4-37. Conceptual Site Model – AOC 32
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism	Potential Human Receptors
Incidental spills and releases from new or waste oil tanks, or waste oil sump **COPCs include:** • TPH • Metals • VOCs • SVOCs • PAHs • PCBs • Dioxins and furans	• Concrete • Surface soil[a]	• Infiltration	• Surface soil • Shallow soil	• Potential release to deeper soil	**Human:** • Maintenance worker • Commercial worker

[a] Surface soil was the primary source media when the bottom of the oil storage tank farm was unpaved.

4.2.23.6 Evaluation of Data Against Data Quality Objectives for AOC 32

This section discusses the evaluation of data against DQOs for AOC 32.

Decision 1 (Nature and Extent Determination): Deferred. Due to substantial access constraints, active use of buildings, and physical dangers, samples were not collected at AOC 32. Soil and soil gas data will be collected when areas become available. The potential for vapor intrusion will be reevaluated before construction of enclosed structures in this area and after the additional delineation of the vapor plume has been conducted.

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. No sampling was conducted at AOC 32 because it is an active unit, and sampling the unit would not be possible without compromising the integrity of the secondary containment. Instead, samples were collected around the Compressor and Auxiliary Buildings in AOC 13.

EPCs inside the fence line were calculated based on all data collected within the fence line and were not calculated on a unit by unit basis. Data were sufficient for calculating EPCs for inside the TCS. EPCs will be evaluated in the future when the TCS is decommissioned.

Decision 3 (Threat to Groundwater Determination): Deferred. Current or potential threat to groundwater was not evaluated because samples were not collected at AOC 32. Threat to groundwater will be evaluated in the future after soil data are collected at AOC 32.

Decision 4 (Offsite Migration Assessment): Concentrations in AOC 32 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are paved or otherwise covered with an impermeable surface. No surface migration pathway exists.

Decision 5 (Data Sufficiency to Support CMS/FS): Deferred. CMS/FS and IM decisions for AOC 25 are deferred until the unit becomes available for sampling.

4.2.24 AOC 33 – Potential Former Burn Area near AOC 17

This section provides details about AOC 33 – Potential Former Burn Area near AOC 17.

4.2.24.1 Setting

AOC 33 is the potential former burn area located near AOC 17, the former onsite septic system, as shown on Figure 2-2. This area was identified when PG&E conducted additional interviews with current and former employees to collect new anecdotal information pertaining to historical TCS practices. Several employees reported that PG&E may have conducted a yearly fire training exercise, during which materials were set on fire, and employees practiced extinguishing the fire. There is uncertainty regarding the exact location of AOC 33.

4.2.24.2 Unit History

Information provided during the interviews indicated yearly fire training exercises involving burning diesel oil in a modified drum occurred east of the wash rack and steam cleaning area. Employees indicated that these fire extinguishing drills took place in the early 1980s (and may have taken place before then) and continued into the 1990s. This area is currently paved. No other information is available regarding this unit.

This area is located mostly within the footprint of AOC 17 and was investigated in conjunction with AOC 17 (Section 4.2.13).

4.2.24.3 Lithology Description

Section 4.2.13.3 provides a lithology description for AOC 17. Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

4.2.24.4 Analytical Results

Not applicable. AOC 33 was investigated as part of AOC 17 (Section 4.2.13).

4.2.24.5 AOC 33 Conceptual Site Model

A combined CSM for AOC 17 and AOC 33 has been developed and is included in Section 4.2.13 and copied in this section.

Figure 4-20a is a graphical CSM developed for AOC 17 based on Site history and BK reported in the Soil RFI/RI Work Plan (CH2M 2013a). Exhibit 4-27 presents the following information for AOC 17:

- Primary sources
- Primary source media
- Potential release mechanisms
- Secondary source media
- Potential secondary release mechanisms

A detailed discussion of the following topics is included in the Soil Part B DQOs TM (CH2M 2011b) and is summarized in this section with updated information:

- Migration pathways
- Exposure media
- Exposure routes
- Potential human and ecological receptors

The primary sources of contamination at AOC 17 are likely to be historical liquid discharges from the laboratory. The quantity of liquid released to the septic system is unknown. Weekly testing of plant cooling water would have resulted in the disposal of approximately 6.5 gallons of liquid per year, whereas daily testing would have resulting in the disposal of approximately 45.5 gallons of liquid per year (assuming approximately 1 pint of liquid waste per test event). In addition to the laboratory waste, the septic system received sanitary waste from the Auxiliary Building as well as the other buildings listed.

The primary source of contamination at AOC 33 is likely to have been diesel fuel that may have spilled from a modified drum that was used in potential fire training exercises and potential release of burn material.

The presence of lead exceeding the BK concentration in shallow (0-foot- to 1-foot-bgs) samples may be from runoff from nearby roads and buildings. The presence of cadmium and zinc exceeding BK concentrations at 5 feet to 6 feet bgs may indicate these compounds were released through the septic system, which likely discharged below 4 feet bgs.

The presence of TPH-d and TPH-mo may be from potential fire training exercises at AOC 33 or runoff from the surrounding roads and buildings. Dioxins and furans, as TEQ human, were not detected exceeding the BK concentration, indicating burned materials did not contribute to contamination in this area.

The primary source medium at AOC 17 is subsurface soil. The depth of the leach lines is approximately 4 feet bgs. The continuous release of liquids in AOC 17 would have possibly caused wastes to infiltrate to deeper soils. Because the liquids were discharged below the ground surface, and the entire area is currently paved, there are no surface migration pathways for this AOC.

The primary source medium at AOC 33 is surface soil and may also have included pavement if fire training activities occurred after the area was paved. The primary release mechanisms are direct releases of contaminated particulates or leaching of contaminants from potential fire training exercises in this area. Contaminants present in burned materials could have been deposited on surface soil as particulates or entered surface soil as dissolved constituents through infiltration of rainfall. However, analytical results (that is, dioxins and furans) and soil boring logs for AOC 17 (Attachment B1) do not support the presence of burned materials in this area.

Contaminants could have leached from surface soils and shallow soil into underlying deeper soils. Potential migration from subsurface soil to groundwater was identified as a potential secondary pathway. Windblown dust contamination from contaminated surface soil within AOC 33 is a potential secondary release mechanism. Windblown contamination, if any, is expected to be limited to surface soils. Surface runoff from AOC 33 to the East Ravine could also have transported COPCs or COPECs in surface soil.

4.2.24.6 Evaluation of Data Against Data Quality Objectives for AOC 33

Not applicable. AOC 33 was investigated as part of AOC 17 (Section 4.2.13).

Contaminants, if present, in AOC 33 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway, as areas within this unit are paved or otherwise covered with an impermeable surface. No surface migration pathway exists.

Additional Considerations: There is uncertainty about the exact location of AOC 33.

4.2.25 Units 4.3, 4.4, and 4.5 – Oily Water Holding Tank, Oil/Water Separator, Portable Waste Oil Holding Tank

This section provides details about Units 4.3, 4.4, and 4.5 – Oily Water Holding Tank, OWS, and Portable Waste Oil Holding Tank.

4.2.25.1 Setting

Units 4.3, 4.4, and 4.5 are located in the southern portion of the lower yard near the western fence line, as shown on Figure 2-2. Unit 4.3 is the Oily Water Holding Tank. Unit 4.4 was the OWS located adjacent to Unit 4.3 (the API OWS relocated from AOC 24, discussed in Section 4.2.20). Unit 4.5 was the portable waste oil storage tank adjacent to Units 4.3 and 4.4.

4.2.25.2 Unit History

This section discusses the history by unit.

Unit 4.3

Unit 4.3, Oily Water Holding Tank, was installed in 1970. It was a 15-feet-long by 5-foot-diameter cylindrical steel tank that had a capacity of 3,000 gallons. The tank was mounted horizontally on two concrete supports; the area beneath the tank was unpaved. The tank was used to collect oily water from the compressor floor drainage (about 200,000 gallons per year), engine cleaning operations (about 10,000 gallons per year), and steam cleaning operations (about 10,000 gallons per year) (Kearny 1987). Wastewater that was collected in this tank was discharged by gravity flow from an aboveground 3-inch-diameter steel pipe to the adjacent OWS (Unit 4.4). The Oily Water Holding Tank was removed in conjunction with the sludge drying beds (SWMU 5) between November 1988 and February 1989 (CH2M 2007a). Soils beneath the tank and concrete foundation were inspected, and no visible contamination was found; therefore, no confirmation samples were collected from this area at that time.

Unit 4.4

Unit 4.4, OWS, was approximately 4.5 feet deep, 15 feet long, and 6 feet wide, and it was constructed of 6-inch-thick concrete (Kearny 1987). The Unit 4.4 OWS received wastewater from Unit 4.3. The OWS was equipped with an underflow weir to control discharge, and the floating oil was transferred by hose to a portable waste oil storage tank. From 1967 to 1969, effluent from the OWS may have been directed to the former sludge drying beds (SWMU 5) and processed along with the cooling water blowdown through the single-step chromium treatment system before discharge. From 1969 through October 1985, effluent from the separator was routed to the Chromate Reduction Tank (SWMU 6) and was processed along with the cooling water blowdown through the two-step chromium treatment system before being discharged.

The separator was closed and removed between November 1989 and March 1990. Stained soils were removed until confirmation testing showed that the residual concentrations met cleanup targets (CH2M 2007a).

Unit 4.5

Unit 4.5, Portable Waste Oil Storage Tank, consisted of an enclosed steel tank about 6 feet long and 2 feet in diameter mounted horizontally on a trailer (Kearny 1987). The tank was connected to a suction pump within the OWS with a flexible hose. The portable tank was stationed on a concrete pad that was bermed on three sides with a 6-inch-high curb. The fourth side of the pad was left open to allow removal of the unit. The Unit 4.5 tank was used to collect skimmed oil from the Unit 4.4 OWS. When the tank was full, it was transported to the eastern side of the TCS and pumped into the stationary waste oil tank that is part of AOC 32. Starting in 1975, the waste oil was either sold for reuse or transported to a recycling center.

Unit 4.5 was removed from service in 1989. The waste oil was removed from the tank, and the tank was then transported offsite to Chemical Transportation in Wilmington, California (Mittelhauser 1990a). No indication of a release associated with the portable waste oil storage tank was observed during a facility inspection performed as part of the RFI (Kearny 1987).

4.2.25.3 Lithology Description

The soil at the TCS project area generally comprises alluvium with varying relative abundances of sand, silt, gravel, and cobbles throughout the investigation area. A general lithologic description for Units 4.3, 4.4, and 4.5 is provided in this section, and Appendix B, Attachment B1 provide boring logs with more detailed lithologic descriptions by location.

The soil at Units 4.3, 4.4, and 4.5 comprises silty sand with gravel and cobbles, with approximately 40% gravel and cobbles up to 6 inches in diameter and 60% silt and sand. Lithology was recorded to a maximum depth of 3 feet bgs at Units 4.3, 4.4, and 4.5.

4.2.25.4 Analytical Results

Appendix B provides general field and sample collection methods. Tables 3-35a through 3-35g provide analytical results for Units 4.3, 4.4, and 4.5, and Figure 3-1 shows sampling locations. The analytical results compared to the screening levels are summarized in this section. Figures 3-10a through 3-10h provide results. There were no exceedances of screening level values in Units 4.3, 4.4, and 4.5.

Metals: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-35a).

CLP Inorganics: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective BK levels (Table 3-35b).

PAHs: Samples were collected from 2 locations from 0 foot to 3 feet bgs (Table 3-35c). PAHs were evaluated by calculating B(a)P equivalents for human health. No samples had detected results that exceeded the B(a)P equivalent CSL (2,100 µg/kg).

TPH: Samples were collected from up to 4 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-35d).

VOCs and SVOCs: VOCs and SVOCs were not a COPC for this unit; therefore, samples were not analyzed for VOCs and SVOCs.

General Chemistry: Samples were collected from 2 locations and were only analyzed for pH, which has no CSL or BK level (Table 3-35e).

Pesticides: Pesticides were not a COPC for this unit; therefore, samples were not analyzed for pesticides.

PCBs: Samples were collected from 2 locations, and no samples had detected results that exceeded their respective CSLs (Table 3-35f).

Dioxins and Furans: Dioxin and furans were not a COPC for this unit; therefore, samples were not analyzed for dioxins and furans.

4.2.25.5 Units 4.3, 4.4, and 4.5 Conceptual Site Model

Due to their proximity to each other, a combined CSM has been developed for the following areas based on the Site history and BK reported for these units in the RFI/RI Work Plan (CH2M 2013a):

- SWMU 5
- SWMU 6
- SWMU 9
- Unit 4.3
- Unit 4.4
- Unit 4.5

Section 4.2.1 provides the CSMs for these units can be found in (SWMU 5).

4.2.25.6 Evaluation of Data Against Data Quality Objectives for Units 4.3, 4.4, and 4.5

This section discusses the evaluation of data against DQOs for Units 4.3, 4.4, and 4.5.

Decision 1 (Nature and Extent Determination): Nature and extent have been sufficiently defined laterally and vertically given laboratory results and current data density. Tables 3-35a through 3-35f and Figures 3-10a through 3-10h provide analytical results are presented in. Table 3-35g provides the following information:

- Frequency of detection
- Maximum detected value
- Number of exceedances of the data against each screening value

Only Category 1 and 2 data were used to delineate the nature and extent of contamination. Considering these data only, 4 samples were collected from 2 locations at depths ranging from 0 foot to 3 feet bgs for Units 4.3, 4.4, and 4.5. The samples were analyzed for one or more of the following analytes:

- Metals
- CLP inorganics
- PAHs
- TPH

- General chemistry
- PCBs

Decision 2 (Data Sufficiency for EPC Calculation): Data are sufficient to estimate representative EPCs. At the time of the RFI/RI Work Plan, existing data for the Part B investigation units were determined to be adequate to support EPC development, except for data regarding PAHs in shallow soil. This data gap was filled during implementation of the RFI/RI Work Plan. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): No current or potential threat to groundwater was identified. The potential impact to groundwater from source areas in the vadose zone was evaluated using a conservative, three-tiered approach and Category 1 and Category 2 data from the Combined Soil RFI/RI Data Set. Appendix C provides a full description of the three-tiered approach and the associated results and conclusions.

Decision 4 (Offsite Migration Assessment): Concentrations in Units 4.3, 4.4, and 4.5 do not pose a potentially unacceptable risk to receptors outside the compressor station fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. One surface soil sample was collected from an unpaved area associated with Unit 4.3 between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- CLP inorganics
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry
- PCBs

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISL for locations outside the compressor station fence line (equal to the EPA RRSL, residential DTSC-SL, ECV, or BK). No ISLs were exceeded.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. No samples were collected in perimeter locations in areas of significant erosion at Units 4.3, 4.4, and 4.5. Potential migration of contamination at depth from Units 4.3, 4.4, and 4.5 does not appear to be a source of contamination to downgradient Part A investigation units.

Decision 5 (Data Sufficiency to Support CMS/FS): Data are sufficient to support CMS/FS and IM decisions. During implementation of the RFI/RI Work Plan, samples were collected and analyzed to determine soil physical parameters. Samples collected at SWMU 5 and AOC 21 (nearby units) can be used to support characterization of Units 4.3, 4.4, and 4.5. Table 3-38 provides results. These data, along with the nature and extent data collected, are sufficient to support CMS/FS and IM decisions.

4.3 Storm Drain System Investigation Results

A storm drain investigation was conducted for the following reasons:

- Determine the location and condition of storm drain pipes and CBs
- Determine connections between CBs and outfalls
- Sample and remove accumulated sediment
- Sample soil at outfalls and along storm drain lines.

The results of the storm drain investigation are described by storm drain line in this section. Appendix B provides a detailed discussion of the storm drain investigation methodology. Briefly, the field investigation consisted of the following steps:

- **Field verification,** including flow testing – Features documented in records were visually verified. CBs and trench drains were located, sediment accumulated in the CBs and trench drains was sampled, and any remaining sediment was removed and disposed of offsite in 2016 at the US Ecology facility in Beatty, Nevada, along with other IDW. Flow testing was used to establish which CBs were connected to other CBs and specific outfalls. In some cases, blockages were encountered, and PG&E attempted to pressure wash and vacuum segments of storm drain lines to remove accumulated material. Samples of the water used for flow testing (also referred to as storm drain flush water samples) were collected and analyzed.
- **Video camera tracing** – Video surveys were conducted within the pipes and CBs to confirm the following information:
  - Verify pipe alignment
  - Locate breaks, obstacles
  - Determine presence of sediment and blockages within drain lines
  - Identify known and unknown service connections

  Most the storm drain lines evaluated in the storm drain investigation had video surveys completed.
- **Storm drain soil investigation** – Soil samples were collected at the SDs and along storm drain lines. Repairs were made and blockages removed from several storm drain lines, as described in the individual storm drain line discussions.

Analytical results of storm drain flush water samples and CB sediment are provided in Tables 3-39 and 3-40, respectively. Table 3-42 summarizes the detailed results of the storm drain survey, including:

- Pipe diameters
- Storm drain lengths
- Pipe materials
- Locations and distances of connections and bends
- Observations from field and video surveys
- Associated CB, trench drain lines (TDLs), and SD sample names associated with each drain line
- Constituents exceeding screening levels in sediment samples from CB, TDL, SD samples
- Constituents in flow test water exceeding concentrations in source water

Figure 3-19 shows storm drain lines and subsegments, storm drain soil sample locations, and CB sediment sample locations. Figure 3-19 also identifies segments of storm drain lines that were video surveyed. Some storm drain line sections could not be video surveyed due to blockages or access constraints.

Sediment was removed from CBs after being sampled, so CB sediment results do not represent current conditions. Several debris samples collected from blockages within storm drain lines were also removed and also do not represent current conditions.

4.3.1 Storm Drain Line 2

Storm Drain Line 2 (SDL-2) is located in the southeastern portion of the TCS and originates on the southeastern side of the Auxiliary Building at Trench Drain Line 1 (TDL-1) and exits in the vicinity of AOC 10a. SDL-2 is a 6-inch-diameter pipe approximately 122 feet long. The pipe composition varies between cast iron, PVC, and corrugated steel. The bottom of a portion of the pipe composed of corrugated steel was corroded with possible small holes between approximately 90 and 100 feet from TDL-1. The corroded portion of SDL-2 is located on the slope within AOC 9, near the terminus between the TCS fence line and the TCS access road.

Soil Samples – One soil sample, SD-01, was collected at the outfall of SDL-2 and evaluated as part of AOC 10. ISLs were exceeded for the following analytes:

- Copper
- CrT
- Nickel
- Zinc

The FOEs ranged from just over 1 (CrT) to 3.3 (zinc). There were no exceedances for organics (Table 3-6). The lateral and vertical extent of exceedances were determined to be generally defined in the vicinity of SD-01, with any data gaps being minor and not requiring further investigation (Section 4.1.4).

CB Sediment Samples – No CB sediment was collected for SDL-2, as TDL-1 did not have any accumulated sediment to sample.

Storm Drain Flush Water Samples – The storm drain flush water sample (SDOF-02) had elevated concentrations of metals and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-02 were less than 2 times greater than the source water for all compounds, except for the following:

- Metals – Concentrations of CrT and CrVI were 4.4 times and at least 45 times greater than those of the source water, respectively.
- TPH – Concentrations of TPH-mo and TPH-d were 126 times and at least 18 times greater than those of the source water, respectively.

The presence of elevated levels of the following analytes in the storm drain flush sample may indicate that sediment accumulated within SDL-2 was impacted by these compounds:

- CrVI
- CrT
- TPH-d
- TPH-mo

However, sediment within the line was not noted in the video log. The location of the possible small holes near the terminus of the line are not recommended for repair.

4.3.2 Storm Drain Line 3

SDL-3 is located on the eastern side of the TCS and captures stormwater from up to six CBs (CB-1 through CB-4 and potentially CB-5 and CB-6), from areas near the northern end of the Auxiliary Building, southeast of AOC 15 (AJCW), and near AOC 32 (Oil Storage Tanks and Waste Oil Sump). SDL-3 comprises three storm drain line segments (A, B, and C) that combine to discharge to one outfall point (SD-03) along the slope east of the TCS fence line above the East Ravine (AOC 10), as follows:

- SDL-3 Segment A begins at CB-4 and joins SDL-3 Segment B at CB-3. Segment A is a 4-inch-diameter pipe approximately 65 feet long and is composed of red clay and PVC. Cracks and blockage were identified near a 90-degree elbow; the affected portion was replaced with chlorinated polyvinyl chloride (CPVC) pipe during the storm drain investigation. Opportunistic soil samples SD-OS34 and SD-OS34A were collected from the 2 locations where cracks were noted.

- SDL-3 Segment B begins at CB-1 and joins SDL-3 Segment C. Segment B is a 5-inch-diameter red clay pipe approximately 20 feet long. Opportunistic soil sample SD-OS36 was collected from where Segment B joins Segment C.
- SDL-3 Segment C begins at CB-5 and ends where Segment B joins. Segment C is an 8-inch-diameter red clay pipe approximately 94 feet long. SDL-3 was previously connected to CB-6. A valve 1 foot south of CB-6 was locked. Soil sample SD-SD44 was collected at the junction of SDL-3 and where the line from CB-6 appears to connect. Opportunistic soil samples SD-OS35 and SD-OS35A were collected downstream of CB-6 when the valve and pipe section was replaced in December 2016.
- SDL-3 from end of Segment C to the outfall as SD-03 is approximately 65 feet.

Soil Samples – Two soil samples, SD-02 and SD-03, were collected at the outfall of SDL-3, and multiple opportunistic samples were collected as described in this section.

Outfall soil samples SD-02 and SD-03 were collected at the outfall of SDL-3 and evaluated as part of AOC 10. ISLs were exceeded for the following analytes at SD-03 (Table 3-6):

- Multiple metals
- HMW PAH
- B(a)P equivalents
- TPH-d

However, approximately 30 feet downgradient at SD-02, only a minor exceedance of lead (FOE 1.2) was measured. The lateral extent of exceedances were determined to be generally defined in the vicinity of SD-02 and SD-03, with any data gaps being minor and not requiring further investigation (Section 4.1.4). The vertical extent of exceedances has not been defined for the following analytes at SD02, where concentrations exceed RBCs and increase with depth:

- Metals, including:
  - Copper
  - CrVI
  - CrT
  - Lead
  - Mercury
- B(a)P equivalents
- HMW PAHs
- TPH-d

Opportunistic soil samples were evaluated as part of AOC 13 (Section 4.2.10):

- SD-OS43
- SD-OS34A
- SD-OS35
- SD-OS35A
- SD-OS36
- SD-SD44

The results of these soil samples were compared to BK and CSLs, and there were exceedances of the following:

- BK was exceeded for the following analytes:
  - Barium
  - Cadmium

  - CrVI
  - CrT
  - Cobalt
  - Copper
  - Lead
  - Molybdenum
  - Nickel
  - Zinc

  Sample location SD-OS34 had the greatest concentrations and the greatest number of BK exceedances. Copper and lead exceeded BK at all 5 depths samples, with BK FOEs ranging from 1.4 to 49 (copper) and from 3.1 to 130 (lead). SD-OS34 from 0.5 foot to 1 foot bgs exceeded TTLC values for mercury and lead.

- CSLs were exceeded for the following analytes:
  - Cadmium
  - CrVI
  - Lead
  - Mercury
  - Dioxins and furans (as TEQ human)

  All CSL exceedances occurred in samples from location SD-OS34. CSL FOEs ranged from 1.3 to 5.6.

The lateral extent of exceedances in soil has been defined in the vicinity if SDL-3. The vertical extent of exceedances was not defined at the following locations for the listed analytes:

- SD-OS35A:
  - CrVI
  - CrT
  - Copper
  - Lead
  - Zinc
- SD-OS35:
  - Lead
- SD-OS34:
  - Copper
  - Lead

However, as these were opportunistic samples collected during other Site activities (for example, pipe repair), deeper samples could not be collected (Section 4.2.10).

CB Sediment Samples - Up to six CBs may be associated with SDL-3:

- CB-01
- CB-02
- CB-03
- CB-04
- Potentially CB-05 and CB-06

There was no sediment in CB-02 and CB-04. Table 3-41 provides analytical results for the following CB samples:

- CB-01
- CB-03
- CB-05

- CB-06

The CB sediment sample results were compared to the BK and CSLs; there were exceedances of the following:

- BK was exceeded for the following analytes:
  - Barium
  - Cadmium
  - CrVI
  - CrT
  - Copper
  - Lead
  - Molybdenum
  - Nickel
  - Zinc
  - Iron
- The greatest BK FOEs were as follows:
  - Lead (32 to 167)
  - Copper (7 to 107)
  - Zinc (12 to 43)
- CSLs were exceeded for the following analytes:
  - Lead (FOE 1.6 to 4.4)
  - Mercury (FOE 2.4 and 2.9)
  - B(a)P equivalents (FOE 3.8)
  - TPH-d (FOE 1.1 and 1.3)
- Lead was detected in CB-6 at 1,400 mg/kg, exceeding the California TTLC hazardous waste concentration. This was the only CB sample that exceeded TTLC limits.

Storm Drain Flush Water Samples - Storm drain flush water sample (SDOF-03) contained elevated concentrations of metals, PAHs, and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-02 were greater than 2 times the source water for the following analytes:

- Metals:
  - Barium
  - CrVI
  - CrT
  - Copper
  - Lead
  - Molybdenum

  With concentrations ranging from 2.2 times (molybdenum) to 55 times (CrVI) greater than source water.
- TPH: TPH-d was 3.2 times higher than source water

Cracks to SDL-3 Segment A were repaired in 2016. No cracks or breakages were noted for other segments. The presence of slightly elevated levels of metals and TPH in the storm drain flush sample and lack of sediment within the CBs and drain lines does not indicate an ongoing source of contamination from SDL-3 to AOC 10.

4.3.3 Storm Drain Line 4

SDL-4 is located on the eastern side of the TCS and captures stormwater from CB-32, near the northern side of AOC 17 (Onsite Septic Systems). SDL-4 appears to be located entirely outside the compressor station fence line. SDL-4 is a 4-inch-diameter PVC pipe approximately 13 feet long.

Soil Samples – One soil sample, SD-04, was collected near the outfall of SDL-4 and evaluated as part of AOC 10. No screening levels were exceeded at SD-04 (Table 3-6). The lateral and vertical extent of exceedances were determined to be generally defined in the vicinity of SD-04, with any data gaps being minor and not requiring further investigation (Section 4.1.4).

CB Sediment Samples – There was no sediment in CB-32; therefore, no sediment samples were collected.

Storm Drain Flush Water Samples – There is no storm drain flush water sample for this storm drain line.

Based on the sampling results, SDL-4 does not appear to contribute to contamination in AOC 10, and no data gaps requiring further investigation have been identified.

4.3.4 Storm Drain Line 4B

SDL-4B is located on the eastern side of the TCS, south of the access road and in the vicinity of the former trench drain. This line is no longer active, as no CB was identified for this storm drain. SDL-4B is a 5-inch-diameter PVC pipe and is approximately 48 feet long. Gravel and debris were found blocking SDL-4B near the start of the line. This blockage was likely associated with the decommissioning of the former trench drain.

Soil Samples – One soil sample, SD-21, was collected at the outfall of SDL-4B. Three additional soil samples (SD-05, SD-06, and SD-22) were collected in the vicinity of SDL-4B. Soil samples were evaluated as part of AOC 10. ISLs were exceeded for the following analytes (Table 3-6):

- Lead
- Molybdenum
- Zinc

The FOEs were less than 2 for all exceedances except for lead at SD-05, which had an FOE of 4.4. The lateral and vertical extent of exceedances were determined to be generally defined in the vicinity of SDL-4B, with any data gaps being minor and not requiring further investigation (Section 4.1.4).

CB Sediment Samples – As no CB was identified for SDL-4B, there is no CB sediment sample.

Storm Drain Flush Water Samples – There is no storm drain flush water sample for this storm drain line because no CB was identified.

Based on the soil sampling results no data gaps requiring further investigation have been identified.

4.3.5 Storm Drain Line 5

SDL-5 is located just north of the TCS access road below the office building; it captures stormwater from CB-7 and exits approximately 34 feet to the south at the TCS access road. SDL-5 is an 8-inch-diameter corrugated steel pipe. During the video survey, it was discovered that there was a slight gap (less than 6 inches wide) in the pipe at 26 feet. The pipe sections were pushed back together after the video survey to try to reduce the size of the gap.

Soil Samples – One soil sample, SD-07, was collected at the outfall of SDL-5 and was evaluated as part of AOC 13. There were BK exceedances of lead (FOE 23) and zinc (FOE 6.9). There were no exceedances of CSLs (Table 3-23). The lateral and vertical extent of soil exceedances were determined to be defined in the vicinity of SDL-5 (Section 4.2.10).

CB Sediment Samples – No sediment was present in CB-7; therefore, there is no CB sediment sample.

Storm Drain Flush Water Samples – Storm drain flush water sample SDOF-05 had elevated concentrations for some metals compared to the source water. The detected concentrations in SDOF-05 were greater than 2 times the source water for the following metals:

- Zinc, 2.9 times greater than source water
- CrT, 5.3 times greater than source water
- CrVI 4.4 times greater than source water

Based on the soil sample result from the SDL-5 outfall, SDL-5 may have contributed to elevated concentrations of lead and zinc in soil in the vicinity of SDL-5. Based on the storm drain flush water sample, accumulated sediment inside SDL-5 may have been impacted by the following analytes:

- CrVI
- CrT
- Zinc

As the accumulated sediment was removed by the storm drain flushing activities, it is not anticipated that SDL-5 is a current source of chromium or zinc to soil.

4.3.6 Storm Drain Line 6

SDL-6 is located on the eastern side of the TCS and captures stormwater from CB-8 near the office building and exits outside the compressor station fence line near AOC 11. SDL-6 is an 8-inch-diameter corrugated steel pipe approximately 52 feet long. There is a “T” joint at 37 feet. Palm tree roots block the “T” joint, and the camera could not be advanced into the unnamed branch to the south. The pipe was found to be very corroded and broken 5 to 10 feet inside the TCS fence line; a soil sample (SD-24) was collected from this area.

Soil Samples – One soil sample, SD-08, was collected at the outfall of SDL-6 and was evaluated as part of AOC 11. The soil sample collected from the corroded and broken section of pipe, SD-24, was evaluated as part of AOC 13. At SD-08, ISLs were exceeded for the following analytes (Table 3-7):

- CrVI
- Copper
- Zinc

At SD-24, BK concentrations were exceeded for the following analytes:

- Cadmium
- Copper
- Lead
- Molybdenum
- Zinc

SD-24 had no exceedances of CSLs (Table 3-23). The lateral extent of exceedances was determined to be defined in the vicinity of both SD-08 (Section 4.1.5) and SD-24 (Section 4.2.10). The vertical extent of exceedances was determined to be defined at SD-24 but not at SD-08 for the following analytes:

- CrVI
- Copper
- Zinc

Areas and sample locations in Storm Drain Line 6 with data gaps shall be considered for inclusion in the CMS/FS.

CB Sediment Samples – CB sediment from CB-8 exceeded BK concentrations for the following analytes:

- Copper (FOE 4.2)
- Lead (3.5)

- Molybdenum (1.9)
- Zinc (2.1)

Sediment from CB-8 also exceeded the CSL for B(a)P equivalents (FOE 3.9) (Table 3-41).

Storm Drain Flush Water Samples – Storm drain flush water sample SDOF-06 had elevated concentrations of metals, PAHs, and TPH compared to the source water (Table 3-44). The detected concentrations in SDOF-06 were greater than 2 times the source water for the following analytes:

- Metals – Concentrations of the following analytes ranged from 2.3 times (vanadium) to 43 times (CrVI) greater than source water concentrations:
  - Barium
  - CrVI
  - CrT
  - Cobalt
  - Copper
  - Lead
  - Nickel
  - Vanadium
  - Zinc
- B(a)P equivalents was at least 9.6 times greater than source water.
- TPH-mo was 16 times and TPH-d was at least 4.8 times greater than source water.

Soil and CB sediment samples may indicate SDL-6 was a source of metals to soil near the line break and at the SD. The storm drain flush water sample was also elevated compared to the source water for some metals, along with some PAHs and TPH. As CB sediment was removed and accumulated material in the storm drain line was flushed with Site activities, SDL-6 is not anticipated to be a current source of contamination to AOC 11. Repairing the broken section of pipe and surveying the unnamed pipe branch to the south may be considered during TCS maintenance operations.

4.3.7 Storm Drain Line 7

SDL-7 is located on the eastern side of the TCS, just north of the covered parking area. SDL-7 captures stormwater from CB-9 and CB-10. SDL-7 originates at CB-9, flows through CB-10, and exits outside the compressor station fence line near AOC 11. SDL-7 is a 4-inch-diameter pipe composed of PVC, corrugated steel, and an unknown material and is approximately 107 feet long.

Soil Samples – One soil sample, SD-10, was collected near the outfall of SDL-7. A second soil sample, SD-09, was collected along the pipeline. Both soil samples were evaluated as part of AOC 11. There were no exceedances of ISLs at SD-09 (Table 3-7). There were ISL exceedances at SD-10 for the following metals:

- CrVI
- Lead
- Mercury
- Zinc)

FOEs ranged from 1.7 (CrVI) to 30 (mercury).

The lateral and vertical extent of soil exceedances were determined to be defined in the vicinity of SDL-7 (Section 4.1.5). With respect to mercury, mercury was ND in all AOC 11 samples except for SD-10 and PA-9 (Table 3-7a). The extent of mercury exceedances was considered defined based on downgradient ND samples. Additionally, both mercury exceedances are less than the RBC of 1 mg/kg; therefore, these exceedances do not pose an unacceptable risk to receptors.

CB Sediment Samples – CB sediment from CB-9 exceeded BK concentrations for the following analytes:

- Copper (FOE 3.9)
- Lead (FOE 4.6)
- Molybdenum (4.7)
- Zinc (6.9)

Sediment from CB-9 exceeded the CSL for B(a)P equivalents (FOE 2.3) (Table 3-41). No sediment was found in CB-10; therefore, no sample was collected.

Storm Drain Flush Water Samples – Storm drain flush water sample SDOF-07 had elevated concentrations of metals and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-07 were greater than 2 times the source water for the following metals:

- CrT was 2.3 times greater than source water.
- Copper was 2 at least 3.5 times greater than source water.

The concentrations in soil near the outfall of SDL-7 may indicate that SDL-7 was a source of metals to AOC 11. There were also elevated metals concentration in CB sediment (CB-9), with lead and zinc exceeding applicable screening levels in both soil and CB sediment. SDL-7 is not anticipated to be a current source of contamination to AOC 11 because CB sediment was removed, and accumulated material in the SDL-7 was flushed during Site activities. No data gaps requiring further investigation have been identified.

4.3.8 Storm Drain Line 8

SDL-8 is located on the eastern side of the TCS northeast of the Compressor Building. SDL-8 captures stormwater from CB CB-11 north of AOC 25 and south of AOC 6 (Cooling Tower B) and exits outside the compressor station fence line near AOC 11. SDL-8 is an 8-inch-diameter pipe approximately 140 feet in length, composed of the following materials:

- Red clay
- PVC
- Corrugated steel
- Potentially concrete

Cracks or scale are present in several locations between 9 and 29 feet from CB-11. During flow testing, a leak was noticed at a pipe material transition between red clay and PVC. A soil sample, SD-OS37, was collected at this location.

There is an abandoned parallel storm drain line on the southern side of SDL-8. Soil samples were collected above and below the abandoned line immediately upslope of where the pipe exits the side of the hill (SD-27). The abandoned pipeline was not video surveyed.

Soil Samples – Multiple soil samples were collected in association with SDL-8, and all were evaluated as part of AOC 11. Four soil samples were collected from near the outfall of SDL-8:

- SD-11A
- SD-11
- SD-23
- SD-12

One soil sample was collected near a leaking portion of SDL-8 (SD-OS37). One soil sample was collected along the abandoned pipeline south of SDL-8 (SD-27). There were exceedances of the ISLs for the following analytes (Table 3-7):

- Metals

- PAHs
- TPH
- PCBs
- Dioxins and furans

The most ISL exceedances occurred near the outfall of the abandoned pipeline (SD-11 and SD-11A):

- The FOEs for metals ranged from 1.1 (copper) to 19 (zinc).
- The FOEs for TPH-d ranged from 2.6 to 4.1.
- The FOE for B(a)P equivalents was 1.8.
- The FOEs for PCBs ranged from just greater than 1 (Aroclor 1254) to 6.5 (total PCBs).
- The FOEs for dioxins and furans ranged from 1.3 (TEQ human) to 25 (TEQ mammal).

There were lesser concentrations and fewer exceedances near the outfall of SDL-8 (SD-23), with FOEs less than 2 for all compounds except TEQ mammal (FOE 2.5). Further downgradient at SD-12, there were no exceedances, indicating minimal downslope transport. The exceedances of the TEQ mammal ISL are not considered data gaps requiring further investigation because, as agreed upon during the investigation process, the TEQ avian and TEQ human ISLs were used to define nature and extent for dioxin and furans because the TEQ mammal ISL of 5.58 ng/kg, based on BK, is very conservative and extremely low.

There were exceedances of metals, PAHs, and PCBs at location SD-OS37, where the pipe was found to be leaking. The greatest FOEs at SD-OS37 were for PAHs (4.9 to 6.9) and PCBs (1.3 to 9.5), and only one metal had an FOE greater than 2 (lead, at 4.3). The lateral and vertical extent of soil exceedances were determined to be defined in the vicinity of SDL-8 (Section 4.1.5).

CB Sediment Samples – CB sediment from CB-11 exceeded BK concentrations for metals and CLP inorganics, with the FOEs ranging from 1.2 (cadmium) to 26 (molybdenum). The CSL was exceeded for arsenic (FOE 1.7) (Table 3-41).

Storm Drain Flush Water Samples – Storm drain flush water sample SDOF-08 had elevated concentrations of metals and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-08 were greater than 2 times the source water for the following for the following metals:

- Concentrations of cooper were 3.8 times greater than source water.
- Concentrations of molybdenum were 3.2 times greater than source water.
- Concentrations of TPH-mo were 21 times greater than source water.
- Concentrations of TPH-d were at least 9.4 times greater than source water.

The concentrations in soil near the outfall of SDL-8 and abandoned pipe may indicate SDL-8 was a source of the following analytes to AOC 11:

- Metals
- TPH
- PAHs
- PCBs
- Dioxins and furans

Based on the storm drain flush water sample, accumulated sediment inside SDL-8 may have been impacted by metals and TPH. As the accumulated material was removed by the storm drain flushing activities, it is not anticipated that SDL-8 is a current source of metals or TPH to soil. Repairing the cracks and leaks in the pipe may be considered as part of station operations.

4.3.9 Storm Drain Line 9

SDL-9, which is located southeast of AOC 6 (Cooling Tower B), captures stormwater from CB-13 east of AOC 6 and exits upslope from AOC 11. SDL-9 is an 8-inch-diameter pipe composed of PVC and corrugated steel, approximately 215 feet long. The pipe was heavily corroded and had holes at approximately 25 feet from CB-13. A soil sample was collected from this location (SD-OS39), and the pipe was repaired during the storm drain investigation. A separation in an aboveground portion of the pipe was discovered during the survey; a soil sample was collected from this location (SD-20). A leak at the separation was noticed during flow testing, and water that continued down the line was found to discharge through large holes in the bottom of the pipe at about 90 feet.

Soil Samples – Soil samples were collected from leaking portions of the pipe (SD-OS39 and SD-20) and near the outfall of SDL-9 (SD-13); these samples were evaluated as part of AOC 11 and AOC 13. Applicable screening levels were exceeded for the following analytes:

- CrVI
- Lead
- Zinc
- Sodium
- B(a)P equivalents

All FOEs were less than 1.5 (Table 3-7 and 3-23). The lateral and vertical extent of soil exceedances were determined to be defined in the vicinity of SDL-9 (Section 4.1.5).

CB Sediment Samples – CB sediment from CB-13 exceeded BK concentrations for metals, with the FOEs ranging from 1.1 (lead) to 4.1 (zinc). The CSL was exceeded for TPH-d (FOE 10) (Table 3-41).

Storm Drain Flush Water Samples – Storm drain flush water sample SDOF-09 had elevated concentrations of metals, PAHs, and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-08 were more than 2 times greater than the source water for the following metals:

- Concentrations of cooper were 4.6 times greater than source water.
- Concentrations of CrVI were at least 5.5 times greater than source water.
- Concentrations of B(a)P equivalents were 9.2 times greater than source water.
- Concentrations of TPH-mo were 11.7 times greater than source water.
- Concentrations of TPH-d were at least 3.1 times greater than source water.

CB sediment and storm drain flush water indicate sediment and accumulated material inside SDL-9 may have been impacted by the following analytes:

- Metals
- PAHs
- TPH

However, the concentrations in soil near the SDL-9 outfall and leaking areas of pipe do not indicate SDL-9 was a source of contamination to AOC 11. As any potentially impacted material (that is, CB sediment and accumulated material inside SDL-9) would have been removed during the storm drain investigation, SDL-9 is not anticipated to be a current source of contamination to AOC 11. Repairing the pipe separation and large holes may be considered during station O&M.

4.3.10 Storm Drain Line 10

SDL-10 is located on the northwestern side of the TCS and captures stormwater from CB CB-15, at the northern end of the lower yard, and exits into AOC 1 (Area Around Former Percolation Bed). SDL-10 is a 10-inch-diameter PVC pipe approximately 156 feet long. The pipe was in good condition at the time of the storm drain survey, and no sediment was noted within the line.

Soil Samples – Soil samples were collected along SLD-10 (SD-OS33) and near the outfall (SD-14); these samples were evaluated as part of AOC 1. There were no exceedances of ISLs at SD-OS33 (Table 3-2). There were ISL exceedances at SD-14 for the following analytes:

- The FOEs for metals ranged from 1.1 (CrT) to 14 (lead).
- The FOEs for PAHs (B(a)P equivalents and PAH HMW) were less than 1.3.
- The FOEs for PCBs ranged from 1.3 (Aroclor 1256) to 6.6 (total PCBs).
- The FOEs for dioxins and furans ranged from 1.3 (TEQ avian) to 34 (TEQ mammal).

The lateral and vertical extent of contamination in the vicinity of the SDL-10 outfall was determined to be defined (Section 4.1.1). The lateral extent of exceedances was determined to be undefined along the slope between upper and the lower yard (in the vicinity of CB-15) for the following analytes:

- Dioxins and furans
- B(a)P equivalents
- Multiple metals

The vertical extent of exceedances was also determined to be undefined in this area for the following analytes (Section 4.2.10):

- Dioxins and furans
- CrVI
- Lead

The exceedance of the TEQ mammal ISL is not considered a data gap requiring further investigation because, as agreed upon during the investigation process, the TEQ avian and TEQ human ISLs were used to define nature and extent for dioxin and furans because the TEQ mammal ISL of 5.58 ng/kg, based on BK, and is very conservative and extremely low.

CB Sediment Samples – CB sediment from CB-15 exceeded BK concentrations for metals, with FOEs ranging from 1.2 (cadmium) to 6.0 (lead). The CSLs were exceeded for the following analytes (Table 3-41):

- Aroclor 1254 (FOE 2.1)
- Total PCBs (FOE 2.2)
- TEQ human (FOE 5.9)

Storm Drain Flush Water Samples – There is no storm drain flush water sample for this storm drain line.

The concentrations in soil near the SDL-10 outfall indicate that SDL-10 may have been a source of the following analytes to AOC 1:

- Metals
- PAHs
- TPH
- PCBs
- Dioxins and furans

As CB sediment was removed during the storm drain survey, SDL-10 is not anticipated to be a current source of contamination to AOC 1. Additional soil sampling or migration control on the slope above CB-15 may be considered during the CMS/FS.

4.3.11 Storm Drain Line 11

SDL-11 extends across the western half of the upper yard and the entirety of the lower yard, originating near the northwestern corner of the Auxiliary Generator Building (AOC 25) and exiting outside the fence line near AOC 1 (Area Around Former Percolation Bed). SDL-11 is divided into five areas or segments, A through E, and has 11 CBs:

- CB-17
- CB-19
- CB-20
- CB-21
- CB-22
- CB-25
- CB-26
- CB-27
- CB-28
- CB-30
- CB-31

The five areas are as follows:

- **SDL-11 Area A** begins at CB-28, continues south to CB-30, then turns west and stops at CB-22. This portion of Area A is an 8-inch-diameter pipe composed of PVC and red clay, approximately 186 feet long.

  Area A also contains the pipe from CB-31 to CB-30. This portion of Area A is approximately 17.5 feet long and is composed of 4-inch-diameter PVC pipe. Blockage was encountered downstream of CB-26, but it was assumed that that CB-26 and CB-27 are also plumbed to the SDL-11 main line. This portion of Area A is approximately 66 feet long and is composed of 8-inch-diameter PVC (CB-27 to CB-26) and 6-inch-diameter red clay (CB-26 to SDL-11 main line).

  An excavation was conducted east of CB-22 to remove an 8-foot-long section of pipe that was nearly entirely filled with imbricated, oily debris. A sample of the debris, SD-OS42 at 3 feet to 4 feet bgs, was collected. Upstream of the excavation, a 25-foot length of pipe was cleared. The blockage from this portion of the pipe had been causing water to back up east of CB-22 and leak from CB-25. A soil sample, SD-29, was collected from this leaking area. Material from the blockage was removed during repairs to this section.

There are seven CBs associated with Area A; sediment samples were collected from five:

- CB-22
- CB-26
- CB-27
- CB-28
- CB-30

There was no sediment in two (CB-25 and CB-31).

- **SDL-11 Area B** begins west of CB-22 and continues to the outfall near soil sample SD-15. This portion of Area B, which is part of the main line for SDL-11, consists of 8-inch- and 10-inch-diameter pipe composed of red clay and PVC, approximately 500 feet long. Several cracks were observed at the bottom of the steep slope between the upper and lower yards; soil sample SD-OS41 was collected from this area. From the bottom of the slope to CB-19, the pipe was full of debris (sand and gravel). Soil sample SD-28 was collected at an offset in the pipe where the pipe material transitioned from red clay to PVC.

  Area B also contains the pipe from trench drain TDL-3 to the SDL-11 main line, from CB-21 to the main line, and from CB-20 to the main line. The pipe from TDL-3 to the main line is an 8-inch-diameter pipe composed of red clay and PVC, approximately 185 feet long. Soil sample SD-OS43 was collected along this portion of the pipe. The first 5 feet of red clay pipe is missing where it meets TDL-3. Soil sample SD-OS30 was collected from this area of broken pipe.

The pipe from CB-21 to the main line is approximately 18 feet long, 8 inches in diameter, and composed of PVC. A 1- to 2-inch gap was discovered at the transition from red clay to PVC pipe. The gap was encased in concrete and soil sample SD-OS38 was collected from this area.

The pipe from CB-20 to the main line is an 8-inch-diameter pipe composed of PVC, approximately 48 feet long. Blockage was found about 2 feet downstream of where the line from CB-20 joins the SDL-11 main line. The area was excavated, and the blockage removed. Soil sample SD-OS40 was collected from this area.

There are three CBs associated with Part B; sediment samples were collected from two (CB-20 and CB-21), and there was no sediment in one (CB-19). SDL-11 Segments D and E overlap within Area B.

- **SDL-11 Segment C** begins at trench drain TDL-2 and ends at CB-17. Segment C is a 10-inch-diameter PVC pipe approximately 46 feet long. The outfall from CB-18 connects to this segment. CB-18 could not be opened; therefore, no sediment sample was collected. Sediment was collected from CB-17.
- **SDL-11 Segment D** begins at CB-17, connects with the main line, and continues to the outfall near SD-15. Segment D is a 10-inch-diameter pipe composed of red clay and PVC, approximately 92 feet long.
- **SDL-11 Segment E** encompasses approximately the last 67 feet of SDL-11 before the outfall.

Soil Samples – Soil samples were collected from nine locations; SD-15 was evaluated as part of AOC 1 (Table 3-2), and all other locations were evaluated as part of AOC 13 (Table 3-23). There were no exceedances of applicable screening levels at SD-28 or SD-29, and there were minor metal exceedances (FOE less than 1.2) at SD-OS43 and SD-OS30. Metal exceedances at SD-OS38 and SD-OS40 were also generally low (FOE less than 2), except for molybdenum at SD-OS38 (FOE 2.8) and copper at SD-OS40 (FOE 3.8). Dioxins and furans slightly exceeded for TEQ avian (FOE 1.6) near the SDL-11 outfall at SD-15.

The most exceedances of screening levels occurred at SD-OS41 and SD-OS42. SD-OS41 soil samples were collected above and next to pipe cracks near the bottom of the slope between the upper and lower yards. There were exceedances of BK concentrations for metals at this location:

- CrVI
- CrT
- Lead
- Molybdenum

FOEs ranged from 1.5 (CrT) to 5.6 (molybdenum). The greatest concentrations of metals, TPH, and PCBs were detected at location SD-OS42 at 3 feet to 4 feet bgs. SD-OS42 was collected from inside SDL-11 where the pipe was almost entirely blocked with oily debris. Most metal concentrations from this location exceeded BK, with FOEs ranging from just over 1 (vanadium) to 160 (molybdenum). There were also exceedances of CSLs for the following analytes:

- Cadmium
- Lead
- TPH-d
- Aroclor 1254
- Total PCBs

FOEs ranged from 2.0 (Aroclor 1254) to 7.7 (TPH-d).

Lead exceeded the TTLC value in SD-OS42 in the 3 feet to 6 feet bgs sample.

The lateral extent of exceedances were determined to be defined for AOC 13 (Section 4.2.10). The vertical extent of exceedances were determined to be defined for the SDL-11-relevant portions of AOC 13, except for the following analytes at SD-OS38 and SD-OS41:

- CrVI
- CrT
- Molybdenum

The lateral and vertical extent of exceedances for AOC 1 in the vicinity of the SDL-11 outfall were determined to be defined (Section 4.1.1).

CB Sediment Samples – CB sediment samples were collected from 8 of the 11 CBs in SDL-11. Table 3-41 provide analytical results for CB samples. The greatest concentrations of most metals and B(a)P equivalents were detected in CB-30. The CB sediment sample results were compared to the BK and CSLs; there were exceedances of the following analytes:

- Cadmium
- CrVI
- CrT
- Copper
- Lead
- Molybdenum
- Nickel
- Selenium
- Zinc

The greatest BK FOEs were for the following analytes:

- Copper (1.1 to 36)
- Lead (1.3 to 20)
- Molybdenum (4.0 to 37)
- Zinc (1.1 to 22)

CSLs were exceeded for CrVI (2.5) and TPH-d (6.1).

Storm Drain Flush Water Samples – Two storm drain flushes were conducted, with water added to CB-28 and CB-20 and storm drain flush samples collected at SD-15 for SDOF-11-01 and SDOF-11-02, respectively. Storm drain flush water had elevated concentrations of metals and TPH compared to source water (Table 3-40). The detected concentrations in SDL-11 flush water samples were more than 2 times greater than the source water for the following:

- Metals – Concentrations of the following analytes were greater than source water concentrations:
  - Barium (2.3 times)
  - CrVI
  - CrT
  - Copper (6.7 times)
  - Lead
  - Molybdenum
  - Nickel
- Concentrations of TPH-mo were 2.6 and 11 times greater than source water.
- Concentrations of TPH-d were at least 6 times greater than source water.

The concentrations in soil at SD-OS41 and SD-OS42 indicate that cracks or blockages in SDL-11 may have contributed to soil contamination. As the blockage associated with SD-OS42 was removed and an 8-foot-long portion of the pipe replaced, this segment of SDL-11 is not anticipated to be a current source of contamination to the TCS. Repair of the pipe cracks in SD-OS41 and removal of debris blocking

SDL-11 between SD-OS41 and CB-19 may be considered during future TCS operations. The concentrations in soil at SD-15 do not indicate SDL-11 was a source of contamination to AOC 1.

As CB sediment was removed, and portions of SDL-11 were flushed of accumulated material during the storm drain survey, sediment and accumulated material in SDL-11 are not anticipated to be a current source of contamination to AOC 1.

4.3.12 Storm Drain Line 12

SDL-12 is located on the western side of the TCS and appears to originate at trench drain TDL-4 and exit near AOC 1 (Area Around Former Percolation Bed). SDL-12 is a 10-inch-diameter pipe composed of PVC, approximately 97 feet long. The pipe was free of debris during the storm drain survey.

Soil Samples – One soil sample was collected along SDL-12 (SD-17), and 1 soil sample was collected near the outfall (SD-16). Both samples were evaluated as part of AOC 1. Concentrations of the following analytes exceeded ISLs:

- Lead
- Zinc
- Manganese

The FOE for all compounds was less than 2.3. Lateral and vertical extent of contamination was determined to be defined in AOC 1 in the vicinity of SDL-12 (Section 4.1.1).

CB Sediment Samples – CB sediment from CB-16 exceeded BK concentrations for the following analytes (Table 3-41):

- Copper (FOE 3.5)
- Lead (FOE 1.4)
- Molybdenum (3.1)
- Zinc (8.8)

Storm Drain Flush Water Samples – Storm drain flush water sample SDOF-12 had elevated concentrations for some metals and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-12 were more than 2 times greater than the source water for the following metals:

- Concentrations of arsenic were 2.2 times greater than source water.
- Concentrations for vanadium were 2.4 times greater than source water.

The concentrations in soil near the outfall of SDL-12 do not indicate that SDL-12 was a source of contamination to AOC 1. The elevated concentrations of TPH or metals in CB sediment and storm drain flush water may indicate that sediment and accumulated material inside SDL-12 was impacted by these compounds. SDL-12 is not anticipated to be a current source of contamination to AOC 1 because CB sediment was removed, and accumulated material inside SDL-12 was flushed during Site activities. No data gaps requiring further investigation have been identified.

4.3.13 Storm Drain Line 13

SDL-13 is located on the southwestern side of the TCS and consists of two lines: SDL-13a and SDL-13b. Both lines appear to originate in the vicinity of Valve Nest A and exit outside the compressor station fence line between AOC 1 (Area Around Former Percolation Bed) and AOC 4 (Debris Ravine). SDL-13a and SDL-13b appear to exit at the same location. The lines are described as follows:

- SDL-13a is a 5.5-inch- to 6-inch-diameter pipe composed of corrugated steel and PVC, approximately 118 feet long. No CB was identified for SDL-13a; however, the pipe was potentially associated with CB-24, which has been disconnected or removed during upgrades to Valve Nest A (Table 3-40). The storm drain video survey was conducted from the outfall; sand and gravel blockage was encountered at 118 feet, which is where the pipe is shown to start on Figure 3-19. This does not appear to be an active storm drain line.

- SDL-13b is an 8-inch-diameter pipe composed of corrugated steel and PVC, approximately 125 feet long. CB-23 is connected to SDL-13b at approximately 46 feet from the outfall. The line appears inactive upstream from CB-23, as no CB was identified further upstream. The storm drain video survey was conducted from the outfall, and the camera could not be advanced past a 90-degree elbow in the pipe at 125 feet, potentially because the pipe is capped. A distance of 125 feet from the outfall is where the pipe is shown to start on Figure 3-19.

Soil Samples – One soil sample, SD-18, was collected near the outfall of SDL-13a and SDL-13b. A second sample, SD-19, was collected downgradient of SD-18. Both samples were evaluated as part of AOC 1. There were exceedances of applicable screening levels for the following analytes (Table 3-2):

- Copper (FOE just greater than 1) at SD-18
- Zinc (FOE 5.3) at SD-18
- Mercury (FOE 9.6) at SD-19

CB Sediment Samples – CB sediment from CB-23 exceeded BK concentrations for the following analytes (Table 3-41):

- Copper (FOE just greater than 1)
- Lead (FOE 2.0)
- Zinc (FOE 5.8)

Storm Drain Flush Water Samples – A storm drain flush water sample was collected for SDL-13b. As no CB was identified for SDL-13a, no storm drain flush could be conducted. Storm drain flush water sample SDOF-13b had elevated concentrations for some metals, PCBs, and TPH compared to the source water (Table 3-40). The detected concentrations in SDOF-13b were more than 2 times greater than the source water for the following:

- Concentrations for CrT were 4.7 times greater than source water.
- Concentrations for zinc were 5.3 times greater than source water.
- Concentrations for CrVI were at least 44 times greater than source water.
- Concentrations for Aroclor 1260 were at least 2.1 times greater than source water.
- Concentrations for Aroclor 1254 were at least 3.0 times greater than source water.

The concentrations in soil near the outfall (SD-18) may indicate that SDL-13 was a source of zinc to AOC 1 or AOC 4. The elevated concentrations of PCBs, TPH or metals in CB sediment and storm drain flush water may indicate sediment and accumulated material inside SDL-13b was impacted by these compounds. SDL-13b is not anticipated to be a current source of contamination to AOC 1 or AOC 4 because CB sediment was removed and accumulated material in the SDL-13b was flushed during Site activities. No data gaps requiring further investigation have been identified.

4.3.14 Storm Drain Line 14

SDL-14 is an inactive drain line located on the southwestern side of the TCS and appears to originate in a ditch near the southwestern corner of the TCS. SDL-14 is an 11-inch-diameter pipe composed of corrugated steel and is approximately 59 feet long. Corrosion and debris was observed in the bottom of the pipe at 19 feet.

Soil Samples – One soil sample, SD-25, was collected near the outfall of SDL-14. SD-25 was evaluated as part of AOC 1. Concentrations in SD-25 exceeded ISLs for the following analytes (Table 3-2):

- Mercury (FOE 8.0)
- Aroclor 1254 (FOE 1.3)
- Total PCBs (1.6)

The FOE for mercury is relatively high compared to the other compounds because the screening level for mercury is low (0.0125 mg/kg). The mercury screening level is based on the ECV, as no BK concentration has been established for the Site.

CB Sediment Samples – As no CB was identified for SDL-14, there is no CB sediment sample.

Storm Drain Flush Water Samples – There is no storm drain flush water sample for this storm drain line because no CB was identified.

The concentrations in soil near the outfall (SD-25) had only minor exceedances (FOE less than 2) of PCBs and an exceedance of mercury. As the screening level for mercury is low and based on ECV not BK, this is not identified as a data gap requiring further investigation.

4.3.15 Storm Drain Line 15

SDL-15 is an inactive drain line located on the southwestern corner of the TCS. The pipe extends out of the hillside between AOC 1 (Area Around Former Percolation Bed) and AOC 4 (Debris Ravine). No CB was identified, and SDL-15 was not video surveyed. SDL-15 is a 10-inch-diameter pipe composed of red clay. The length of the pipe is not known as only the portion of the pipe that extends out of the hillside was investigated.

Soil Samples – One soil sample, SD-26, was collected near the outfall of SDL-15. SD-26 was evaluated as part of AOC 1. There were exceedances of applicable screening levels for the following analytes:

- Metals, including:
  - Copper
  - Lead
  - Zinc
- Total PCBs
- Dioxins and furans as:
  - TEQ avian
  - TEQ mammal

The FOE was greater than 2 for zinc (FOE 3.8) and TEQ mammal (7.3). The exceedance of the TEQ mammal ISL is not considered a data gap requiring further investigation because, as agreed upon during the investigation process, the TEQ avian and TEQ human ISLs were used to define nature and extent for dioxin and furans because the TEQ mammal ISL of 5.58 ng/kg, based on BK, is very conservative and extremely low.

CB Sediment Samples – As no CB was identified for SDL-14, there is no CB sediment sample.

Storm Drain Flush Water Samples – There is no storm drain flush water sample for this storm drain line because no CB was identified.

4.3.16 Unlocated, Isolated, or Decommissioned Catch Basins and Storm Drain Lines

CB 14 could not be located in the field. CB 24 was removed during construction upgrades to Valve Nest A in the southern portion of the lower yard.

4.3.17 Storm Drain Lines Summary

The Storm Drain Line investigation defined and located storm drain CBs and storm drain lines within and around the TCS through the following activities:

- Onsite reconnaissance
- Field verification

- Flow testing
- Video camera tracing

Sediment was sampled, when present, from all identified CBs; soil samples were also collected along storm drain lines at regular intervals, where joints or breaks were identified, and at SDs.

Sediment was removed from CBs, and sediment was flushed and cleaned from storm drain lines where accessible. Several repairs were made to broken or clogged sections of drain lines. CBs are designed to collect sediment, which reduces the potential for solids to migrate offsite.

Corrective measures are recommended and will be evaluated as part of the CMS/FS, such as:

- Storm drain monitoring
- Regular cleaning
- Removal of accumulated sediments with CBs
- Implementation of stormwater BMPs
- Prevention or mitigation of erosion of surface soils

4.4 Perimeter Area Investigation

The Perimeter Area is defined as the area extending from the TCS fence line to the toe of the slope, outside of the fence line. Most the TCS is currently bermed or curbed. Figure 3-18 shows the current bermed and curbed areas, as well as the areas that have neither berms nor curbs. The perimeter does not include any areas that are currently defined as being part of an existing unit. The following areas are all located in part or in their entirety on the slope:

- AOC 4
- AOC 9
- AOC 10
- AOC 11
- SWMU 1

As described in Section 2.5.1, Perimeter Area sample locations were identified based on areas with visible discoloration or other potential direct impacts, or that may experience or have experienced surface water runoff through sheet flow. Perimeter sampling locations were originally selected during a field walk with DTSC and DOI on October 18, 2007. The proposed locations were modified following the Site walk with DTSC, DOI, and the Tribes on December 15, 2011.

In addition, while berms and curbs are present along most of the TCS fence line, historical sheet flow pathways could have been different than current pathways along the perimeter. Therefore, DTSC and DOI directed PG&E to collect perimeter samples along the entire perimeter, regardless of the location of current or historical berms or curbs (CH2M 2013a).

The proposed Perimeter Area investigation program was included as Appendix C of the Soil RFI/RI Work Plan. Perimeter sampling was conducted in a phased manner, as directed by DTSC and DOI, and consistent with the phased sampling approach for the investigation within the fence line.

The Perimeter Area investigation data have been used to help evaluate whether human and ecological receptors outside the fence line could be exposed to surface soil impacted by chemicals originating within the fence line of the TCS through the offsite migration pathway.

4.4.1 Analytical Results

Perimeter Area samples were assigned to Part A and Part B investigation units. Analytical results are presented in the appliable units.

4.4.2 Perimeter Area Conceptual Site Model

CSMs have been developed for the Part A and Part B investigation units to which Perimeter Area samples were assigned. A separate CSM has not been developed for the Perimeter Area.

4.4.3 Evaluation of Data Against Data Quality Objectives for Perimeter Area

This section discusses the evaluation of data against DQOs for the Perimeter Area.

Decision 1 (Nature and Extent Determination): Not applicable. Perimeter area samples were assigned to relevant Part A and Part B investigation units during the nature and extent evaluation and are included in the discussion of those units.

Decision 2 (Data Sufficiency for EPC Calculation): Not applicable. Perimeter area samples were assigned to nearby units and will be assessed in the risk assessment for the applicable unit. Existing data for all analytes are sufficient.

Decision 3 (Threat to Groundwater Determination): Not applicable. Perimeter area samples were assigned to nearby units during the threat to groundwater evaluation and are included in the discussion of those units. Appendix C provides more detail.

Decision 4 (Offsite Migration Assessment): Concentrations at Perimeter Area locations outside the compressor station fence line may pose a potentially unacceptable risk to receptors outside the fence line from the surface migration pathway based on evaluation of surface soil data, screening comparison values, and potential transport mechanisms and pathways. Perimeter Area samples were collected both inside and outside the compressor station fence line during the combined soil investigations. Samples collected inside the fence line have been evaluated with their assigned Part B investigation unit for evaluation against Part B DQO 4. Additional Perimeter Area samples collected outside the fence line, which were assigned to Part A investigation units, are evaluated here. These Perimeter Area samples were assigned to the following areas:

- AOC 1
- AOC, 9
- AOC 10
- AOC 11
- AOC 27
- AOC 31

Surface soils samples were collected in unpaved areas outside the fence line in the Perimeter Area between 0 foot and 1 foot bgs and submitted for analysis of one or more of the following analytical groups:

- Metals
- PAHs
- VOCs
- SVOCs
- TPH
- General chemistry
- PCBs
- Dioxins and furans

Tables 3-39a through 39j provide the full analytical results. Results were screened against the relevant ISLs for locations outside the compressor station fence line (equal to the EPA RRSL, DTSC-SL, ECV, or BK). One or more samples exceeded the ISLs for the following analytes and equivalency factors:

- Several metals were detected at concentrations exceeding ISLs:
  - CrVI

  - CrT
  - Copper
  - Lead
  - Molybdenum
  - Nickel
  - Zinc

  The greatest FOE was for zinc, which was detected at a concentration exceeding the ISL (BK) of 58 mg/kg at 17 of 20 locations, with a maximum concentration of 550 mg/kg at PA-19.

- HMW PAHs were detected at a concentration exceeding the ISL (ECV) of 1,160 µg/kg at 9 of 21 locations, with a maximum concentration of 32,900 µg/kg at PA-19.
- B(a)P equivalent exceeded the ISL (RRSL) of 110 µg/kg at 11 of 21 locations, with a maximum concentration of 8,200 µg/kg at PA-19.
- Total PCBs exceeded the ISL (RRSL) of 230 µg/kg at 6 of 21 locations, with a maximum concentration of 615.5 µg/kg at PA-10.
- TEQ avian exceeded the ISL (DTSC-SL) of 16 ng/kg at 10 of 12 locations, with a maximum concentration of 1,100 ng/kg at PA-20.
- TEQ human exceeded the ISL (DTSC-SL) of 50 ng/kg at 8 of 12 locations, with a maximum concentration of 1,600 ng/kg at PA-20.
- TEQ mammal exceeded the ISL (BK) of 5.58 ng/kg at 12 of 12 locations, with a maximum concentration of 1,600 ng/kg at PA-20.

Table 3-39j summarizes the greatest exceedances and presents the greatest FOEs for each of the locations. Based on potential migration pathways and mechanisms, including surface water flow offsite (from sheet flow and storm drains), soil erosion, and wind dispersion, concentrations exceeding ISLs at several Perimeter Area locations outside the fence line suggest potential migration from units inside the fence line to outside the fence line may have occurred. The Perimeter Area is also a potential source of contamination to downgradient Part A investigation units.

A second-tier migration assessment was also conducted to assess offsite migration potential for contamination at depth (2 feet to 3 feet bgs) in perimeter sample locations where significant erosion is observed. Samples collected inside the fence line have been evaluated with their assigned Part B investigation unit for evaluation against Part B DQO 4. Additional Perimeter Area samples collected outside the fence line, which were assigned to Part A investigation units, are evaluated here.

Most samples collected as part of the Perimeter Area investigation were only sampled from 0 foot to 1 foot bgs. However, 2 samples associated with AOC 11 (PA-11 and PA-12) and 1 sample associated with AOC 31 (PA-08) were sampled to at least 3 feet bgs. These 3 samples were compared to ISLs as follows:

- Perimeter Area Investigation samples collected from 2 feet to 3 feet bgs at AOC 11 (PA-11 and PA-12) did not exceed ISLs. Potential migration of contamination at depth from the Perimeter Area does not appear to be a source of contamination to downgradient areas of AOC 11.
- The Perimeter Area Investigation sample from 2 feet to 3 feet bgs at AOC 31 (PA-08) exceeded the ISL for lead by a factor of 1.1. Potential migration of contamination at depth from the Perimeter Area may be a source of lead contamination to downgradient unit AOC 11. However, the lead concentration at PA-08 (9.3 J [estimated] mg/kg) is almost 4 times less than the RBRG (36 mg/kg), indicating lead at depth at AOC 31 does not present an unacceptable risk to receptors in downgradient areas.

Sufficient data have been collected outside the compressor station fence line to assess potential offsite migration, and the nature and extent of these analytes have been evaluated as part of the applicable Part B units in Section 4.2 and in the risk assessment.

Decision 5 (Data Sufficiency to Support CMS/FS and IMs): Not applicable.

Additional Considerations: The need for runoff and erosion controls or removal of contaminated soil for those locations where exceedances indicate a threat of offsite migration will be evaluated in the CMS/FS. Based on the perimeter samples, the following perimeter surface locations will be carried forward for evaluation based on screening level exceedances of ten times or greater:

- Associated with AOC 11:
  - SD-24
  - PA-09
  - PA-10
  - PA-11
  - PA-12
- Associated with AOC 1:
  - PA-02
  - AOC13-19
  - AOC13-20
  - AOC13-21
  - PA-15
  - AOC16-4
  - AOC16-grit
  - AOC18-11
  - AOC21-OS2
- Associated with AOC-10:
  - AOC22-3
  - PA-18
  - PA-19
  - PA-20
  - PA-21

4.5 Summary of Data Gaps

Exhibit 4-38 summarizes the data gaps that have been identified in Part A and Part B investigation units, storm and floor drain systems, and the Perimeter Area. As stated in Exhibits 4-1 and 4-2, the need for additional data to address data gaps may be assessed in the CMS/FS. Data gap details are provided in the Evaluation Against Data Quality Objectives sections specific to each investigation unit within Sections 4.1 and 4.2.

Exhibit 4-38. Summary of Data Gaps in Part A and Part B Investigation Units, Storm and Floor Drain Systems, and Perimeter Area
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation, PG&E Topock Compressor Station, Needles, California

Unit	Data Gap Identified [a]	Description of Data Gap [b]
Part A Investigation		
SWMU 1: Former Percolation Bed	DQO 1 Additional consideration	• Vertical extent not defined for the following analytes at specific locations: – Cobalt – Copper – CrT – Nickel – Zinc • There may be uncertainty in the lateral extent of contamination for some constituents (e.g., dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.
AOC 1: Area Around Former Percolation Bed	DQO 1 Additional consideration	• Vertical extent not defined for total PCBs just south of the highway • There may be uncertainty in the lateral extent of contamination for some constituents (e.g., dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.
AOC 4: Debris Ravine	DQO 4	• No samples analyzed for soil physical parameters.
AOC 9: Southeast Fence Line	DQO 1	• Vertical extent not defined for the following analytes at specific locations: – Certain metals – PAHs – PCBs – Dioxins and furans • Lateral extent not defined for dioxins and furans within AOC 9 and in depression areas across the access road from AOC 9.
AOC 10: East Ravine	DQOs 1 and 4	• Vertical extent not defined for the following analytes at specific locations: – Certain metals – PAHs – TPH – Dioxins and furans • No samples analyzed for soil physical parameters.
AOC 11: Topographic Low Areas	DQO 1	• Vertical extent not defined for certain metals or dioxins and furans at specific locations.
AOC 12: Fill Areas	DQO 4 Additional consideration	• No samples analyzed for soil physical parameters. • Based on the minimal debris encountered and infrequent detections of COPCs, there is uncertainty about whether the correct location was investigated.
AOC 14: Railroad Debris Site	DQO 1	• Lateral extent not defined for the following analytes south of AOC14-19: – Metals – Pesticides – Dioxins and furans
AOC 27: MW-24 Bench	DQOs 1 and 4	• Lateral extent not defined for PAHs and dioxins and furans along the access road. • Vertical extent not defined for lead along the access road (AOC27-6). • No samples analyzed for soil physical parameters.
AOC 28: Pipeline Drip Legs	Additional consideration	• Uncertainty whether correct location was investigated for some historical tank units.
AOC 29: IM-3 Treatment Plant	DQOs 1 through 4 deferred	• Data gap analysis has been deferred until the IM-3 Treatment Plant is decommissioned.
AOC 30: MW-20 Bench	DQOs 1 through 4 deferred	• Data gap analysis has been deferred until after the groundwater remedy decommissioning sampling is completed.

Unit	Data Gap Identified [a]	Description of Data Gap [b]
AOC 31: Former Teapot Dome Oil Pit	DQO 4 Additional consideration	• No samples analyzed for soil physical parameters. • There is uncertainty regarding the location or presence of the oil pit.
UA-1: Pipeline Disposal Area	DQOs 1 through 4 not investigated	• Area not investigated at request of Tribes.
UA-2: Former 300B Pipelines Liquid Tanks	DQO 4 Additional consideration	• No samples analyzed for soil physical parameters. • A data gap for arsenic in bedrock is identified.
Part B Investigation		
AOC 5: Cooling Tower A	DQOs 1, 3, and 5 deferred	• Additional soil data will be collected when AOC 5 is available for sampling.
AOC 6: Cooling Tower B	DQOs 1, 3, and 5 deferred	• Additional soil data will be collected when AOC 6 is available for sampling.
AOC 13: Unpaved Areas within the TCS	DQO 1	• Lateral extent not defined for the following analytes along the slope between AOC 6 and the lower yard: – Multiple metals – PCBs – Dioxins and furans • Vertical extent not defined for the following analytes along the slope between AOC 6 and the lower yard: – CrVI – Lead – Dioxins and furans • Vertical extent not defined for multiple metals in the vicinity of storm drain line SDL-3. • Vertical extent not defined for multiple metals on the slope below AOC 5. • Vertical extent not defined for certain metals at specific locations in other areas of AOC 13.
AOC 15: Auxiliary Jacket Cooling Water Pumps	DQO 3 deferred	• DQO 3 deferred until the unit becomes available for sampling.
AOC 18: Combined Wastewater Transference Pipelines	DQO 1	• Lateral and vertical extent not defined in areas where pipelines are not accessible for investigation or left in place.
AOC 19: Former Cooling Liquid Mixing and Hotwell Area	DQOs 1, 3, and 5 deferred	• Additional soil data will be collected when AOC 19 is available for sampling.
AOC 20: Industrial Floor Drains	DQOs 1 and 5 deferred	• Additional soil data will be collected when AOC 20 is available for sampling.
AOC 22: Unidentified Three-Sided Structure	DQO 1	• Vertical extent not defined for CrT and lead at sample location AOC 22-1.
AOC 23: Former Water Conditioning Bldg.	DQO 1	• Vertical extent not defined for the following analytes at sample location AOC23-3: – CrVI – Lead – Dioxins and furans
AOC 24: Stained Area and Former API Oil/Water Separator	Additional consideration	• There is some uncertainty in the exact location of the AOC 24 stained horizon.
AOC 25: Compressor and Generator Engine Basements	DQOs 1, 3, and 5 deferred	• Soil data will be collected when AOC 25 is available for sampling.
AOC 26: Former Scrubber Soil Sump	DQO 1 deferred	• Lateral and vertical extent not defined for VOCs in soil gas. • Installation of deeper soil vapor probes is deferred until the area becomes available for sampling.
AOC 32: Oil Storage Tanks and Waste Oil Sump	DQOs 1, 3, and 5 deferred	• Soil data will be collected when AOC 32 is available for sampling.

Unit	Data Gap Identified [a]	Description of Data Gap [b]
Portions of AOC 4 Inside the Fence Line	DQOs 1 and 4	• Lateral extent not defined on eastern side of AOC 4 for the following analytes: – Nickel – PAHs – PCBs – Dioxins and furans • No samples analyzed for soil physical parameters.
Storm Drain Line 3	DQO 1	• Vertical extent not defined for the following analytes at SD-02: – Metals, including: ✓ Copper ✓ CrVI ✓ CrT ✓ Lead ✓ Mercury – B(a)P equivalents – HMW PAHs – TPH-d
Storm Drain Line 6	DQO 1	• Vertical extent not defined for CrVI or copper at SD-08

[a] For this exhibit, "DQO" refers to the DQO Decisions, as follows:

<u>**Part A Units:**</u>

Decision 1 (Nature and Extent Determination): Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

Decision 2 (Data Sufficiency for EPC Calculation): Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

Decision 3 (Threat to Groundwater Determination): Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

Decision 4 (Data Sufficiency to Support CMS/FS and/or IMs): Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs

<u>**Part B Units:**</u>

Decision 1 (Nature and Extent Determination): Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

Decision 2 (Data Sufficiency for EPC Calculation): Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

Decision 3 (Threat to Groundwater Determination): Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

Decision 4 (Offsite Migration Assessment): Determine whether residual soil concentrations inside the fence line resulting from past compressor station practices pose a potentially unacceptable risk to receptors outside the compressor station fence line via the surface migration pathway. If a potentially unacceptable risk to receptors outside fence line exists, or if determination of potential risk to receptors outside fence line based on sample data is not feasible, develop controls to eliminate migration pathways or remove contaminated soil.

Decision 5 (Data Sufficiency to Support CMS/FS and/or IMs): Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[b] Additional sampling to address data gaps shall be considered for inclusion in the CMS/FS.

5. Summary of PG&E's Risk Assessment

A soil HHERA was completed for the TCS site. The HHERA was finalized October 2019 (Arcadis 2019). The objectives of the HHERA were to:

- Help determine the need for remedial action with respect to soil conditions
- Provide a basis for determining levels of constituents that can remain in soil at the Site and still be adequately protective of public health and the environment

The HHERA was conducted using methodology presented in the associated agency-approved HHERA Work Plans (Arcadis 2008a, 2009a, 2015) and as directed by DTSC in the November 17, 2017, directive letter to PG&E (DTSC 2017b), which included evaluating all constituents evaluated during the RFI/RI soil investigations to identify COPCs and COPECs that could potentially pose an unacceptable risk to human health or the ecological environment.

5.1 Data Evaluation and Exposure Point Concentration Calculation

As discussed in the HHERA report (Arcadis 2019), only the highest quality data collected during the RFI/RI (Category 1) were used in the HHERA. Samples representative of soil that has since been removed as part of a removal action were not included. Data were grouped into data sets by individual potential exposure areas (for example, Bat Cave Wash or AOC 10) and into combined exposure areas (for example, all exposure areas outside the TCS).

Data for each potential exposure area were also grouped according to exposure depth. Humans were assumed to contact soil from 0 foot to 10 feet bgs, and ecological receptors were assumed to contact soil from 0 foot to 6 feet bgs.

Additionally, for the two soil potential exposure areas encompassing wash areas (Bat Cave Wash and AOC 10), two scouring scenarios were evaluated. The 2-foot scouring scenario assumes that the top 2 feet of soil is removed during potential future scouring resulting from surface runoff following heavy rainfalls. Similarly, in the 5-foot scouring scenario, 5 feet of soil is assumed to be removed during scouring. Data sets were adjusted so that potential exposures for the human health receptors were from the 'new' surface to a depth of 10 feet bgs, and the ecological exposures were from the 'new' surface to 6 feet bgs.

Within each depth interval, interim intervals were defined based on specific receptor activities. COPCs and COPECs were identified using various statistical comparisons and tests to assess whether the constituents were detected at concentrations exceeding BK levels; organic constituents without BK values were selected as COPCs and COPECs if detected. EPCs (the representative concentration potentially contacted by the potential receptors), based on the 95UCL, were estimated for the specific depth intervals relevant to various receptors and exposure scenarios.

5.2 Human Health Risk Assessment Overview

Potential human receptors were evaluated as four main categories:

1) Worker
2) Recreational user
3) Tribal user
4) Hypothetical resident

The primary potentially complete exposure pathways evaluated were soil direct contact exposure pathways; that is:

- Incidental ingestion
- Inhalation

- Dermal exposure

Worker types evaluated were as follows:

- Long-term maintenance worker
- Short-term maintenance worker
- Commercial worker (assumed to work inside the TCS fence line only)

Worker activities outside the TCS fence line could include intrusive activities associated with contacting soil up to 10 feet bgs. Recreation user types evaluated included:

- Camper
- Hiker
- Hunter
- Off-highway vehicle (OHV) rider (or all-terrain vehicle rider)

Recreational users were evaluated for exposure to soil up to 3 feet bgs outside the TCS fence line.

Tribal use was associated with exposure outside the TCS fence line (that is, inhalation of dust arising from wind erosion or VOCs that may volatilize from soil).

The hypothetical future residential user was evaluated as requested by the BLM and was assumed to contact soil up to 10 feet bgs and to grow and consume vegetables, fruits, and poultry from the TCS site. As specified by DOI in a March 23, 2015 letter (DOI 2015b), DOI will not use a future residential scenario on federal lands within the project area when evaluating cleanup options in the FS phase.

Incremental lifetime cancer risks (ILCRs) and noncancer hazard indices were estimated for potential exposures to constituents in soil or soil gas. Cumulative ILCRs (sum of chemical-specific ILCRs) posed by the Site should not exceed 1×10^{-6} to 1×10^{-4}. As stated in the HHERA, the DTSC point of departure for excess incremental lifetime cancer risk is 1×10^{-6}. A cumulative noncancer hazard index that is less than or equal to 1 implies that the predicted exposure is not expected to result in adverse, noncancer health effects.

As described in the HHERA Work Plan (Arcadis 2008a) and HHERA (Arcadis 2019), the human populations that could be present in the areas outside the TCS (that is, maintenance workers, recreational users, and Tribal users) would more likely be exposed randomly, over a lifetime, to soil present in all potential exposure areas outside of TCS, rather than have a lifetime of contact limited to a single exposure area. Therefore, the combination of all exposure areas outside the TCS fence line is the scenario in the HHERA considered to most appropriately represent both current and potential future exposures for the following receptors:

- Maintenance workers
- Recreational users
- Tribal users

Furthermore, to address the Tribes' comments on the HHERA exposure assumptions for the recreational users, and due to the physical and topographical barriers that exist at the TCS site, certain recreational activities are unlikely to occur, so the following statements were included in Section 5.6.3.2 of the HHERA:

> *"In addition, as recommended by DOI (Arcadis 2015), it is assumed that each of the recreational activities could take place at any location on federal land. In reality, specific locations may be preferred for certain activities, while other locations may be less attractive or may have limited recreational options. No physical barrier (such as fencing) is present that would stop an individual recreational user from accessing any and all areas of the AOCs outside the TCS. Therefore, potential receptor populations would more likely be exposed randomly, over a lifetime, to soils present across the outside the TCS potential exposure*

area, rather than have a lifetime of contact limited to a potential exposure area based on an individual AOC (as evaluated in the area-specific appendices at the request of DTSC)."

Also as stated in Section 5.6.3.2 of the HHERA:

"The exposure time, frequency, and duration for the recreational user provided by DOI and used in the HHRA erred on the side of conservatism to be protective of human health and may not represent 'reasonably anticipated use' of the Site. Therefore, the health risks estimated for recreational users may be overestimated and less than presented in the HHRA. In sum, the risk assessment meets the regulatory requirement to address an upper bound for potential exposures for current and reasonably foreseeable future receptor populations; the actual exposures to soil at the Site that could be incurred by workers, recreators, and Tribal use would probably be much less than has been estimated in this HHRA."

5.3 Ecological Risk Assessment Overview

Potential ecological receptors evaluated included:

- Plants
- Terrestrial invertebrates
- Representative small and large home-range wildlife (that is, birds and mammals)

The primary potential exposure pathways for soil were determined to be as follows:

- Direct contact or incidental ingestion of surface soil (0 foot to 0.5 foot bgs)
- Shallow soil (0 foot to 3 feet bgs)
- Subsurface soil (0 foot to 6 feet bgs)
- For mammals and birds, uptake and subsequent ingestion of COPECs in biota

Hazard quotients (HQs) were estimated for each potential receptor population and exposure area using EPCs developed for each COPEC over the appropriate soil exposure intervals in accordance with the agency-approved HHERA Work Plans (Arcadis 2008a, 2009a, 2015). Multiple sets of exposure (for example, EPCs) and toxicity assumptions (for example, toxicity reference values [TRVs]) were evaluated, proceeding from generic to more refined assumptions.

Risk drivers were identified based on those COPECs with unacceptable community or population level risk. HQs greater than 1 were predicted for plants and soil invertebrate communities, and lowest observable adverse effect level (LOAEL)-based HQs were predicted for wildlife populations (or LOAEL-based HQs greater than 10 for dioxin TEQ) using the most refined exposure and effects assumptions (that is, selected TRVs, area-weighted EPCs, and Site-specific Site use factor) and additional supporting lines of evidence. For threatened or endangered species and other species of concern observed onsite (ring-tail cat and bats, respectively), a qualitative assessment was completed based on surrogate and representative receptors.

5.4 Conclusions

Several complete pathways of exposure to COPCs and COPECs are present at the Site, both now and potentially in the future. The HHERA generally found no unacceptable risk for most human and ecological receptors. Of the potential human receptors, no unacceptable risk was identified for all relevant potential exposure areas for the following receptors:

- Tribal users
- Hunters
- Commercial workers
- Short- and long- term maintenance workers

Of the potential ecological receptors, no unacceptable risk was identified for all relevant potential exposure areas for the following receptors:

- Special-status species
- Large home-range receptors
- Herbivorous and insectivorous birds
- Herbivorous small mammals

For various human recreators and desert shrew (insectivorous small mammals), the potential for unacceptable risk was identified in localized areas in the following exposure areas:

- SWMU 1 (within Bat Cave Wash)
- AOC 9 (including portions of the RFI/RI investigation area known as AOC 10)
- or AOC 10

The risk drivers for human recreators[7] and the desert shrew are the following analytes:

- Dioxins and furans TEQ
- CrT (desert shrew only)
- CrVI (recreator only)
- Copper (desert shrew only)

The potential for unacceptable risk was also identified for plants and invertebrates; however, only generic risk-based screening levels were available to estimate HQs; and, as discussed in the HHERA, there is low confidence in the ability to predict risk to plants and invertebrates at the Site based on these generic screening levels. Because chemical impacts, if they are occurring, are indistinguishable from changes associated with physical human disturbances, the potential for adverse effects to the health of the plant community is considered to be low; therefore, risk drivers were not identified for plants.

The exceedances of low-confidence generic plant screening values, which are widely acknowledged to have low ability to predict toxicity in plants, were not recommended for soil management decisions.

The information from floristic surveys (GANDA and CH2M 2013; CH2M 2017c) was used as a stronger line of evidence in the HHERA to assess plant community health at the Site, rather than simply using the exceedances of generic and low-confidence screening levels. It was not feasible to incorporate information from the floristic surveys at the site as a line of evidence for soil management decision-making because soil samples collected as part of the groundwater remedy may have been from areas or depths where plants are not currently present or exposed. Therefore, for plants, risk conclusions were primarily based on communities observed during floristic surveys at the Site.

5.5 Risk-based Remedial Goals for Risk Drivers

The HHERA (Arcadis 2019) presents RBRGs for COPCs and COPECs in soil that most significantly contribute to estimates of unacceptable risk to human health or ecological receptors (that is, "risk drivers" or COCs). RBRGs are concentrations that do not present unacceptable risk to human health and ecological receptors. An RBRG is a proposed health-protective target cleanup concentration that can be

[7] To address the Tribes' comments about the HHERA exposure assumptions for recreational users, and due to the physical and topographical barriers that exist at the TCS site, certain recreational activities are unlikely to occur, so the following statements were included in Section 5.6.3.2 of the HHERA, "In addition, as recommended by DOI (Arcadis 2015), it is assumed that each of the recreational activities could take place at any location on federal land. In reality, specific locations may be preferred for certain activities, while other locations may be less attractive or may have limited recreational options. No physical barrier (such as fencing) is present that would stop an individual recreational user from accessing any and all areas of the AOCs outside the TCS. Therefore, potential receptor populations would more likely be exposed randomly, over a lifetime, to soils present across the outside the TCS potential exposure area, rather than have a lifetime of contact limited to a potential exposure area based on an individual AOC (as evaluated in the area-specific appendices at the request of DTSC)." Also as stated in Section 5.6.3.2 of the HHERA, "The exposure time, frequency, and duration for the recreational user provided by DOI and used in the HHRA erred on the side of conservatism to be protective of human health and may not represent 'reasonably anticipated use' of the site. Therefore, the health risks estimated for recreational users may be overestimated and less than presented in the HHRA. In sum, the risk assessment meets the regulatory requirement to address an upper bound for potential exposures for current and reasonably foreseeable future receptor populations; the actual exposures to soil at the site that could be incurred by workers, recreators, and Tribal use would probably be much less than has been estimated in this HHRA."

used, in combination with other factors, such as BK concentrations, as a starting point for making risk management decisions. RBRGs are calculated for constituents in soil for a given potential receptor where the findings of the HHERA suggest some form of risk management or remediation may be warranted.

As stated in the HHERA, the RBRGs are not intended to be a bright line, nor used on a point by point basis to identify locations that may warrant risk management. Rather, and consistent with the HHERA approach, RBRGs are applied based on the potential exposure area of interest (that is, the 95UCL of the mean for the potential exposure area should be less than or equal to the RBRG).

5.5.1 Human Health Risk-based Remedial Goals

Consistent with EPA guidance (1991), a risk-based process was used in the HHERA to estimate RBRGs for COPCs that drive soil risk concerns exceeding de minimis risk levels (Arcadis 2019). For compounds identified as carcinogens, negligible or de minimis risk levels were defined in accordance with state and federal guidance as 1 in 1 million (1×10^{-6}). DTSC and EPA ultimately have authority to allow for residual risks to be within the risk management range of 1×10^{-4} to 1×10^{-6}. As indicated in the *National Oil and Hazardous Substances Pollution Contingency Plan* (40 CFR 300), cancer risks between 1 x 10-6 and 1 x 10-4 are within a risk management range. This is generally referred to as the acceptable risk range. Within this estimated cancer risk range, there is flexibility for risk managers in deciding what action, if any, is necessary and appropriate for the protection of human health.

For dioxins TEQ, the HHERA notes that DTSC's HERO supports the use of residential and indoor commercial worker remedial goals equal to 10 times the theoretical potential cancer risk of 1×10^{-6} (equal to that associated with a theoretical potential cancer risk of 1×10^{-5}). This regulatory approach is based on studies of bioavailability of dioxins that demonstrate exposure under normal residential and indoor commercial conditions has minimal influence of the serum of exposed individuals.

Recreational users[8] are assumed to have the same intake rates from ingestion, dermal contact, and inhalation exposure pathways as under a residential scenario; but exposure occurs on a less frequent basis than assumed under a residential scenario. Therefore, potential exposure to dioxin TEQ in soil for the recreational users over a lifetime would be less than for a hypothetical resident. As such, the HHERA concludes that RBRGs for recreational users equal to 10 times the theoretical potential cancer risk of 1×10^{-6} (that is, 1×10^{-5}) may be appropriate for the Site.

As described in the HHERA, human health RBRGs were calculated for CrVI and dioxin TEQ, as these were the significant contributors to risks exceeding de minimis levels, under the following potential exposure scenarios:

- Camper
- Hiker
- OHV rider

As none of the risk drivers were based on the potential for adverse noncancer effects (that is, the noncancer hazard indices were less than 1 for relevant exposure scenarios), the human health RBRGs

8 To address the Tribes' comments about the HHERA exposure assumptions for recreational users, and due to the physical and topographical barriers that exist at the TCS site, certain recreational activities are unlikely to occur, so the following statements were included in Section 5.6.3.2 of the HHERA, "In addition, as recommended by DOI (Arcadis 2015), it is assumed that each of the recreational activities could take place at any location on federal land. In reality, specific locations may be preferred for certain activities, while other locations may be less attractive or may have limited recreational options. No physical barrier (such as fencing) is present that would stop an individual recreational user from accessing any and all areas of the AOCs outside the TCS. Therefore, potential receptor populations would more likely be exposed randomly, over a lifetime, to soils present across the outside the TCS potential exposure area, rather than have a lifetime of contact limited to a potential exposure area based on an individual AOC (as evaluated in the area-specific appendices at the request of DTSC)." Also as stated in Section 5.6.3.2 of the HHERA, "The exposure time, frequency, and duration for the recreational user provided by DOI and used in the HHRA erred on the side of conservatism to be protective of human health and may not represent 'reasonably anticipated use' of the site. Therefore, the health risks estimated for recreational users may be overestimated and less than presented in the HHRA. In sum, the risk assessment meets the regulatory requirement to address an upper bound for potential exposures for current and reasonably foreseeable future receptor populations; the actual exposures to soil at the site that could be incurred by workers, recreators, and Tribal use would probably be much less than has been estimated in this HHRA."

are all based on the potential for carcinogenic effects. Exhibit 5-1 summarizes the RBRGs protective of potential human receptors. Risk levels of 1 × 10^{-4}, 1 × 10^{-5}, and 1 × 10^{-6} are shown in the exhibit.

Exhibit 5-1. Human Health Risk-based Remediation Goals
RFI/RI Report, Volume 3: Results of Soil and Sediment Investigation,
PG&E Topock Compressor Station, Needles, California

Risk Drivers for Potential Recreational Users	Human Health RBRG	RBRG Basis
CrVI	3.1 mg/kg	OHV rider at 1 x 10^{-6} risk
	31 mg/kg	OHV rider at 1 x 10^{-5} risk
	310 mg/kg	OHV rider at 1 x 10^{-4} risk
Dioxins and furans TEQ	100 ng/kg	Hiker at 1 x 10^{-6} risk
	1,000 ng/kg	Hiker at 1 x 10^{-5} risk
	10,000 ng/kg	Hiker at 1 x 10^{-4} risk

5.5.2 Ecological Risk-based Remedial Goals

The HHERA identified the following risk drivers and potential exposure areas as presenting an unacceptable risk to one or more potential ecological receptors:

- Bat Cave Wash exposure area (baseline): Dioxin TEQ for small mammals
- AOC 9 exposure area (including portions of RFI/RI investigation area known as AOC 10):
  - CrVI and copper for plants
  - CrVI, CrT, and copper for invertebrates
  - CrT, copper, and dioxin TEQ for small mammals
- AOC 10 exposure area:
  - CrVI and CrT for plants
  - CrT for invertebrates
  - CrT and dioxin TEQ for small mammals

Vegetation communities observed at the Site during the floristic surveys conducted in 2013 (GANDA and CH2M 2013) and in 2017 (CH2M 2017c) are typical of Mojave Desert plant communities. As noted in Section 5.4 and in the HHERA:

> *"…no obvious impairment of the plant community was observed in the vicinity of the Site, and it provides the important habitat functions necessary for ecological receptors that inhabit the area…Because chemical impacts, if they are occurring, are difficult to distinguish from changes associated with physical human disturbances, the potential for adverse effects to the health of the plant community can be considered low; therefore, risk drivers were not identified for plants."*

The exceedances of low-confidence generic plant screening values are widely acknowledged to have low ability to predict toxicity in plants. Therefore, these generic screening levels for plants and soil invertebrates are not recommended for use as RBRGs at the Site. Because the main risk drivers for plants and soil invertebrates (CrVI and CrT) tend to be collocated, risk management or remedial actions considered for the protection of wildlife receptors potentially exposed to CrT will also reduce risk to plants and invertebrates.

For potential wildlife receptors, RBRGs based on protection of wildlife populations (that is, based on LOEAL TRVs) were derived for insectivorous small mammals (desert shrew), the only potential wildlife receptor identified with the potential for unacceptable risk associated with exposure to COPECs in soil at this Site. The RBRGs for small home-range insectivorous mammals (desert shrew) were derived using the dietary dose model used to estimate HQs in the predictive ecological risk assessments (ERAs). The RBRGs were calculated using Microsoft Excel SolverTM software that determines the soil concentration for a target HQ equal to 1.

For dioxin TEQ, a range of RBRGs was calculated using alternate and more robust bioaccumulation factor (BAF) and TRV approaches and values. The congener-specific BAFs (EPA 1999; Fagervold et al. 2010) and a recommended mammalian dioxin TRV developed in Section 6.7.5 of the HHERA Report of 30 nanograms per kilogram body weight per day (ng/kg-bw/day) derived using the EPA's Ecological Screening Level approach were used to calculate the RBRGs protective of insectivorous small mammals.

Exhibit 5-2 summarizes the ecological RBRGs.

Exhibit 5-2. Ecological Risk-based Remediation Goals
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Risk Driver for Shrew	BAF	LOAEL-based Mammalian TRV	Ecological RBRG
Chromium, total	ERA and RAWP	ERA and HHERA Work Plan	145 mg/kg
Copper	ERA and RAWP	ERA and HHERA Work Plan	145 mg/kg
Dioxins and furans TEQ	EPA 1999	30 ng/kg-day (geomean of rodent studies)	190 ng/kg
Dioxins and furans TEQ	Fagervold et al. 2010	30 ng/kg-day (geomean of rodent studies)	360 ng/kg

ng/kg-day = nanogram(s) per kilogram per day
RAWP = Risk Assessment Work Plan

5.6 Risk-based Concentrations for Soil Management

RBCs were also developed and presented in Appendix RBC of the HHERA. The RBCs were developed for the Soil Management Plan to be used to support decisions for the handling, management, and storage of potentially contaminated and displaced soil at the Site during implementation of a groundwater remedy at the Site to address chromium contamination in groundwater.

For protection of human health, the RBCs were developed for the list of COPCs identified in the HHERA using the same approach and equations as for the development of the human health RBRGs for risk drivers.

For ecological receptors, the RBCs were developed for the list of COPECs identified in the HHERA using the same approach and equations as for the development of the ecological RBRGs for risk drivers. Note that ecological RBCs recommended for soil management decisions were based only on wildlife receptors. Similar to the approach in the HHERA, exceedances of low confidence generic plant screening values were not recommended for soil management decisions. Additionally, it was not feasible to incorporate information from the floristic surveys at the site as a line of evidence for soil management decision-making because soil samples collected as part of the groundwater remedy may have been from areas or depths where plants are not currently present or exposed.

Subsequent to submittal of the HHERA, revised CrVI RBCs were calculated for plants and soil invertebrates at the request of DTSC. The revised RBCs were calculated from historical and recent data available in the peer-reviewed literature. The updated RBCs are 8.1 mg/kg for plants and 25.7 mg/kg for soil invertebrates. These values were presented in Table RBC-3.1 of the Errata to the HHERA. The development of revised RBCs for CrVI do not impact the nature and extent evaluation because the RBCs are only to be used to support decisions for the handling, management, and storage of potentially contaminated and displaced soil at the Site and not for evaluating the extent of contamination.

5.7 HHERA Key Findings

Overall, the HHERA conducted herein found no potentially unacceptable risk to most human and ecological receptors exposed to COPCs and COPECs in soil at the Site, both within the TCS (inside the TCS exposure area) and exposure areas outside the TCS. Estimated risks were determined to be acceptable for all relevant exposure areas for the following receptors:

- Human Health Receptors:
  - Tribal user and hunter
  - Workers:
    - Commercial
    - Short-term maintenance workers
    - Long-term maintenance workers
- Ecological Receptors:
  - Special-status species (state- and federal-listed threatened and endangered wildlife species and state species of concern), including:
    - Ring-tailed cat
    - Cave myotis
    - Pallid bats
  - Large home-range receptors, including:
    - Desert kit fox
    - Nelson’s desert bighorn sheep
    - Red-tailed hawk
    - Yuma myotis
  - Herbivorous and insectivorous birds, including:
    - Gambel’s quail
    - Cactus wren
  - Herbivorous small mammals: Merriam’s kangaroo rat

The remaining receptors are as follows:

- Camper
- Hiker
- OHV rider
- Desert shrew

In areas within SWMU 1, AOC 9, or AOC 10, the potential for unacceptable risk for these receptors was identified as being driven by a limited number of compounds; that is:

- For human health:
  - Dioxin TEQ
  - CrVI
- For ecological receptors:
  - Dioxin TEQ
  - CrT
  - Copper

The RBRGs calculated for the risk drivers and relevant human and ecological receptors were used in an example of applying the RBRGs using a risk-based approach to identify locations driving risk to exceed acceptable levels for both human[9] and ecological populations. As stated in Section 8 of the HHERA, this evaluation also constitutes a hot spot analysis in that it identifies the locations with elevated COPC and COPEC concentrations associated with unacceptable risk for an area. That process revealed a total of nine locations in three exposure areas as associated with unacceptable risk. Those locations are as follows:

Protection of human recreators (4 total locations for the 0 foot to 3 feet bgs interval):

- Dioxin TEQ:
  - SWMU1-25 outside the TCS fence line
  - SWMU 1
- CrVI:
  - AOC10-20
  - #10 in AOC 9
  - MW-58BR_S in AOC 10

Protection of desert shrew (7 total locations for the to 0.5 foot bgs interval):

- Dioxin TEQ (based on RBRG of 190 ng/kg[10]):
  - SWMU1-25 in Bat Cave Wash
  - AOC 9 areas:
    - PA-20
    - AOC10-23
    - PA-21
  - AOC10c-4 in AOC 10
- CrT: AOC10-20 in AOC 9
- Copper: AOC10-21 in AOC 9

The overall results of the HHERA support that focusing remedial planning on limited specific locations should be effective in reducing overall risks to levels that are protective of human health and ecological receptors.

In total, the nine locations fall within three main exposure areas:

1) SWMU 1 (near SWMU1-25)
2) AOC 9 along the TCS fence line (which is within the RFI/RI investigation area known as AOC 10)
3) AOC 10 within the AOC10c subarea (that is, drainage depression behind the middle berm in the East Ravine)

[9] To address the Tribes' comments about the HHERA exposure assumptions for recreational users, and due to the physical and topographical barriers that exist at the TCS site, certain recreational activities are unlikely to occur, so the following statements were included in Section 5.6.3.2 of the HHERA, "In addition, as recommended by DOI (Arcadis 2015), it is assumed that each of the recreational activities could take place at any location on federal land. In reality, specific locations may be preferred for certain activities, while other locations may be less attractive or may have limited recreational options. No physical barrier (such as fencing) is present that would stop an individual recreational user from accessing any and all areas of the AOCs outside the TCS. Therefore, potential receptor populations would more likely be exposed randomly, over a lifetime, to soils present across the outside the TCS potential exposure area, rather than have a lifetime of contact limited to a potential exposure area based on an individual AOC (as evaluated in the area-specific appendices at the request of DTSC)." Also as stated in Section 5.6.3.2 of the HHERA, "The exposure time, frequency, and duration for the recreational user provided by DOI and used in the HHRA erred on the side of conservatism to be protective of human health and may not represent "reasonably anticipated use" of the site. Therefore, the health risks estimated for recreational users may be overestimated and less than presented in the HHRA. In sum, the risk assessment meets the regulatory requirement to address an upper bound for potential exposures for current and reasonably foreseeable future receptor populations; the actual exposures to soil at the site that could be incurred by workers, recreators, and tribal use would probably be much less than has been estimated in this HHRA."

[10] Per direction from the agencies (call on November 19, 2019), the lesser of the dioxin TEQ RBRGs (i.e., 190 ng/kg) was used in this example. Note, using the higher dioxin TEQ RBRG of 360 ng/kg would include only three locations: SWMU 1-25 in SWMU-1 and PA-20 and AOC10-23 in AOC 9.

The HHERA notes that the locations identified using this approach are intended to help focus remedial planning efforts on those areas and COPCs and COPECs that contribute most significantly to levels of calculated unacceptable risk for ecological receptors and risks exceeding de minimis levels for potential human receptors. The overall results of the HHERA support that focusing remedial planning on these locations, as demonstrated by the hypothetical remediation, should be effective in reducing overall calculated risks to levels that are protective of human health and potential ecological receptors.

6. Conclusions and Recommendations

This section provides the RFI/RI conclusions and recommendations.

6.1 Summary of RFI/RI Approach and Activities

This Volume 3 Soil RFI/RI report presents the results of soil investigations and data collection conducted at the PG&E TCS site from 1988 through 2020. PG&E has conducted the Soil RFI/RI to identify and evaluate the nature and extent of soil contamination at the Site, and assess the extent to which the release poses a potential threat to human health and the environment.

Known sources and releases of contamination include:

- Releases of untreated cooling tower wastewater containing CrVI to Bat Cave Wash
- Incidental releases from the TCS to low-lying areas surrounding the TCS, including overflow from the JCW pumps to East Ravine
- Discharge of waste liquids and water softener sludge to AOC 10 (East Ravine) and AOC 11 (Topographic Low Areas)
- Debris disposal and trash burning
- Disposal of water conditioning sludge
- Application of oil for dust control
- Fire training activities
- Incidental releases and leaks and spills from the following areas:
  - AOC18 (Combined Wastewater Transference Pipelines)
  - AOC 19 (Former Cooling Liquid Mixing and Hotwell Area)
  - AOC 20 (Industrial Floor Drains)
  - AOC 21 (Round Depression Near Sludge Drying Bed)
  - AOC 24 (Stained Area and Former API Oil/Water Separator)
  - AOC 26 (Former Scrubber Oil Sump)
  - UA-2 (Former 300B Pipeline Liquids Tank Area)

The investigated areas include:

- Areas outside the TCS fence line (Part A investigation areas)
- Areas inside the TCS fence line (Part B investigation areas)
- Perimeter areas adjacent to the TCS fence line
- Storm drains leading from the TCS to areas outside the fence line

As described in Section 2, multiple rounds of soil sampling activities were performed to satisfy and fulfill both Part A and Part B DQOs. Multiple work plan documents were prepared and provided to agencies, Tribes, and stakeholders for review and comment before implementation; comments on those work plans and RTCs are included in the final work plan documents. In addition, position letters from Tribes or stakeholders, if any, are included in DTSC and DOI administrative records.

Throughout the soil investigation process, as data gaps were identified, PG&E conducted additional field investigations to address the data gaps. Data gap-driven soil sampling activities were most recently presented in a series of three data gap work plans (CH2M 2016a, 2016b, 2016c). On June 20, 2017, DOI determined that the Soil RFI/RI field work was complete, and sufficient data had been collected to proceed with the risk assessment (DOI 2017b).

As described in Section 3, data collected during the RFI/RI investigations were evaluated against the Part A and Part B DQOs on a unit by unit basis. Data were collected to satisfy the following DQO decisions:

For the Part A units:

- Decision 1 – Nature and extent determination
- Decision 2 – Data sufficiency for risk assessment EPC calculation
- Decision 3 – Threat to groundwater determination
- Decision 4 – Data sufficiency to support CMS/FS and/or IMs

For the Part B units:

- Decision 1 – Nature and extent determination
- Decision 2 – Data sufficiency for EPC calculation
- Decision 3 – Threat to groundwater determination
- Decision 4 – Offsite migration assessment
- Decision 5 – Data sufficiency to support CMS/FS and/or IMs

Sections 4.1 through 4.4 present a detailed evaluation of the Combined Soil RFI/RI Data Set and soil parameter data against the Part A and Part B DQOs. CSMs were updated for investigation areas based on updated information. Exhibits 4-1 and 4-2 summarize the evaluation against the DQOs for all investigation areas and units at the Site. The results of the evaluation indicate that DQOs have been satisfied for most investigation areas and identified areas where determination of the full nature and extent of contamination was not feasible or warranted. Uncertainties regarding nature and extent of impacts can be addressed during remediation, if needed, or as deferred units become accessible.

6.2 Summary of Risk

As described in Section 4, based on the findings of the HHERA, there is minimal unacceptable risk to most human and ecological receptors exposed to COPCs and COPECs in soil at the Site, both within the TCS and at exposure areas outside the TCS fence line. Estimated risks were determined to be acceptable for all relevant exposure areas for most human and ecological receptors.

The potential for unacceptable risk was identified in areas within SWMU 1, AOC 9, and AOC 10 for the following receptors driven by a limited number of compounds:

- Camper
- Hiker
- OHV rider
- Desert shrew

These compounds include the following:

- For human health:
  - Dioxin TEQ
  - CrVI
- For ecological receptors:
  - Dioxin TEQ
  - CrT
  - Copper

In total, 9 locations fall within 3 main areas:

- SWMU 1 near SWMU1-25
- AOC 9 and AOC 10 along the TCS fence line
- AOC 10 within the AOC10c subarea (that is, drainage depression behind the middle berm in the East Ravine)

Addressing these locations through the risk management decision-making processes will be effective in reducing overall risks to levels that are protective of human health and ecological receptors. It is recommended these areas be carried forward into the CMS/FS or mitigated with IMs.

Upon completion of the NTCRA, the final confirmation sample results will be used to recalculate the post-removal action risk at the Site. The Sitewide data set used in the Soil HHERA will be revised to reflect Site conditions after the NTCRA. Revised HHERA findings will be incorporated into the overall remedial planning and decisions for soil at the Topock site.

In addition to the areas identified within the HHERA, several unpaved areas inside the TCS have surficial contaminant concentrations in soil that may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway. Figure 3-18 identifies locations considered in the offsite migration assessment, and Exhibit 4-2 identifies which areas had surficial soil concentrations that may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway. It is recommended these areas be carried forward into the CMS/FS or mitigated with IMs. Exhibit 6-1 lists these areas.

Exhibit 6-1. Potential Offsite Migration Areas
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AOCs and SWMUs	
• SWMU 5: Sludge Drying Beds • AOC 8: Paint Shed • AOC 13: Unpaved Areas within the TCS • AOC 16: Former Sandblast Shelter • AOC 18: Combined Wastewater Transference Pipelines	• AOC 21: Round Depression Near Sludge Drying Bed • AOC 22: Unidentified Three-Sided Structure • Portions of AOC 4 Inside the Fence Line • Perimeter Area – several locations

6.3 Summary of Findings

This section summarizes the findings of this RFI/RI Report Volume 3.

Hazardous debris, trash, and potentially ACM are present in areas within the following locations:

- AOC 10
- AOC 13
- AOC 14
- AOC 27

It is recommended these areas be carried forward into the CMS/FS or mitigated with IMs to gather, collect, and properly dispose of debris, trash, and ACM. Nonhazardous debris or trash may be managed by TCS maintenance and general housekeeping.

Exhibits 6-2 and 6-3 provide a summary of data gaps, deferred areas, and areas to be considered for inclusion in the CMS/FS. The exhibits provide the justification and proposed actions for evaluation.

6.4 Other Considerations and Future Work

A Soil CMS/FS will be completed after approval of RFI/RI Report Volume 3. The objective of the Soil CMS/FS will be to develop and evaluate corrective measure alternatives and recommend the most appropriate alternatives to manage contaminated soil and sediment where required. The soil CMS/FS will:

- Define media cleanup levels that will be protective of human health and the environment
- Evaluate potential cleanup technologies
- Develop and recommend alternatives that are both protective of human health and the environment and consistent with remedial objectives

Upon completion of the NTCRA, a Completion Report will be prepared and will include the following information:

- A description of the volume and disposition of materials removed
- Figures showing the extent of the excavation and soil sample locations
- Tables listing soil sample confirmation screening results

Final confirmation sample results will be used to recalculate the post-removal action risk at the Site. The Sitewide data set used in the soil HHERA will be revised to reflect Site conditions after the NTCRA. Revised HHERA findings will be incorporated into the overall remedial planning and decisions for soil at the Topock site. An RFI/RI Addendum, an HHERA Addendum, or both may be warranted to summarize and discuss conditions before cleanup actions taken at the Site.

If new or previously unidentified releases are discovered at the Site, the notification requirements described in the *Corrective Action Consent Agreement (Revised)* (DTSC 1996) will be followed:

> *In the event Respondent identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous waste constituents, or discovers new solid waste management units not previously identified, Respondent shall notify DTSC Project Coordinator orally within 48 hours of discovery and notify the DTSC in writing within 10 days of discovery summarizing the findings, including the immediacy and magnitude of the potential threat to human health and/or the environment.*

Soil and material displaced at the TCS during operation activities, including O&M, emergency responses, or planned construction, will be handled and managed according to the *Topock Compressor Station Soil Management Plan* (Jacobs 2019). The notification process outlined in the TCS Soil Management Plan will be followed.

Exhibit 6-2. Summary of Findings for Part A Investigation Units
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PG&E Topock Compressor Station, Needles, California

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for inclusion in CMS/FS	CMS/FS Action and Evaluation
SWMU 1: Former Percolation Bed	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Cobalt – Copper – CrT – Nickel – Zinc • There may be uncertainty in the lateral extent of contamination for some constituents (for example, dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.	Unacceptable risk to human recreators at sample location SWMU1-25. (Select areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** Evaluate remediation options as needed.
AOC 1: Area Around Former Percolation Bed	DQO 1 data gap: • Vertical extent not defined for total PCBs just south of the highway. • There may be uncertainty in the lateral extent of contamination for some constituents (e.g., dioxins) in Bat Cave Wash; extent was assumed to be constrained by the edges of the wash.	N/A (Select areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
AOC 4: Debris Ravine	DQO 4 data gap: • No soil samples analyzed for soil physical parameters.	Soil accumulates above the dam or the gabion after rainfall events.	Yes	**Data gaps and uncertainties:** No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** • Evaluate long-term removal of accumulated sediment or long-term stabilization of area. • Measures may be considered as part of an administrative control, such as: – Signs – Fencing – Land use controls • The following activities will be included in the CMS/FS: – Long-term inspections – COPC sampling – O&M of the check-dam and gabion
AOC 9: Southeast Fence Line	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Certain metals – PAHs – PCBs – Dioxins and furans • Lateral extent not defined for dioxins and furans within AOC 9 and in depression areas across the access road from AOC 9.	Unacceptable risk to human recreators and desert shrew at sample locations: • #10 • AOC 10-20 • AOC10-21 • AOC10-23 • PA-20 • PA-21 [c] (Areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** Evaluate remediation options as needed.
AOC 10: East Ravine	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Certain metals – PAHs – TPH – Dioxins and furans DQO 4 data gap: • No soil samples analyzed for soil physical parameters.	Unacceptable risk to human recreators and desert shrew at sample locations MW-58BR_S and AOC10c-4. (Select areas within this investigation unit are addressed by the Soil NTCRA.) Presence of debris.	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** • Evaluate remediation options as needed. • Evaluate removal of hazardous debris.
AOC 11: Topographic Low Areas	DQO 1 data gap: • Vertical extent not defined for the following analytes at specific locations: – Certain metals • Dioxins and furans	(Subarea AOC 11-e is addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for inclusion in CMS/FS	CMS/FS Action and Evaluation
AOC 12: Fill Areas	DQO 4 data gap: • No soil samples analyzed for soil physical parameters. • Uncertainty whether correct location was investigated.	N/A	No	No further action. **Data gaps and uncertainties:** No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** N/A.
AOC 14: Railroad Debris Site	DQO 1 data gap: • Lateral extent not defined for the following analytes south of AOC 14-19: – Metals – Pesticides – Dioxins and furans	Presence of debris. (Select area within this investigation unit is addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** Evaluate removal of hazardous debris as needed.
AOC 27: MW-24 Bench	DQO 1 data gap: • Lateral extent not defined for PAHs and dioxins and furans along the access road. • Vertical extent not defined for lead along the access road. DQO 4 data gap: • No soil samples analyzed for soil physical parameters.	Presence of debris. (Select areas within this investigation unit are addressed by the Soil NTCRA.)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** Evaluate removal of hazardous debris as needed.
AOC 28: Pipeline Drip Legs	DQOs satisfied for existing and known drip legs. • Uncertainty whether correct location was investigated for some historical tank units.	N/A	No	No further action.
AOC 29: IM-3 Treatment Plant	DQO 1 through 4 deferred until IM-3 Treatment Plant is decommissioned.	N/A	Deferred	Deferred.
AOC 30: MW-20 Bench	DQO 1 through 4 deferred until after groundwater remedy decommissioning sampling is completed.	N/A	Deferred	Deferred.
AOC 31: Former Teapot Dome Oil Pit	DQO 4 data gap: • No soil samples analyzed for soil physical parameters. • Uncertainty regarding the location and presence of the oil pit.	N/A	No	No further action. **Data gaps and uncertainties:** No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). **Additional considerations:** N/A.
UA-1: Pipeline Disposal Area	DQO 1 through 4 not investigated at request of the Tribes.	N/A	No	No further action.
UA-2: Former 300B Pipeline Drip Tank	DQO 4 data gap: • No soil samples analyzed for soil physical parameters. • A data gap for arsenic in bedrock is identified.	N/A	No	No further action. **Data gaps and uncertainties:** • No sampling proposed to fill DQO 4 data gap (no samples analyzed for soil physical parameters). • Additional investigation of the bedrock data gap is not proposed at this time. **Additional considerations:** N/A.

[a] In this exhibit, "DQO" refers to the DQO Decisions, as follows:

Decision 1 (Nature and Extent Determination): Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

Decision 2 (Data Sufficiency for EPC Calculation): Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

Decision 3 (Threat to Groundwater Determination): Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

Decision 4 (Data Sufficiency to Support CMS/FS and/or IMs): Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[b] Exhibit 4-38 in Section 4.5 provides data gap details.

[c] The following sampling locations are located in AOC 10 but were used as part of the AOC 9 exposure unit in the HHERA:

- AOC 10-20
- AOC 10-21
- AOC 10-23
- PA-20
- PA-21

Exhibit 6-3. Summary of Findings for Part B Investigation Units, Storm and Floor Drain Systems, and Perimeter Area
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PG&E Topock Compressor Station, Needles, California

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for Inclusion in CMS/FS	CMS/FS Action and Evaluation
SWMU 5: Sludge Drying Beds	DQOs satisfied.	N/A	No	No further action.
SWMU 6: Chromate Reduction Tank	DQOs satisfied.	N/A	No	No further action.
SWMU 8: Process Pump Tank	DQOs satisfied.	N/A	No	No further action.
SWMU 9: Transfer Pump	DQO 4 not assessed, and no surface soil samples collected.	N/A	No	No further action.
SWMU 11: Former Sulfuric Acid Tanks	DQOs satisfied.	N/A	No	No further action.
AOC 5: Cooling Tower A	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 6: Cooling Tower B	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 7: Hazardous Materials Storage Area	DQOs satisfied.	N/A	No	No further action.
AOC 8: Paint Shed	DQOs satisfied.	N/A	No	No further action.
AOC 13: Unpaved Areas within the TCS	DQO 1 data gap: • Lateral extent not defined for the following analytes along the slope between AOC 6 and the lower yard: – Multiple metals – PCBs – Dioxins and furans • Vertical extent not defined for the following analytes along the slope between AOC 6 and the lower yard: – CrVI – Lead – Dioxins and furans • Vertical extent not defined for multiple metals in the vicinity if storm drain line SDL-3. • Vertical extent not defined for multiple metals on the slope below AOC 5. • Vertical extent not defined for certain metals at specific locations in other areas of AOC 13.	Presence of debris on the slope between upper and lower yards	Yes	**Data gaps and uncertainties:** Assess need for additional soil samples, and evaluate remediation options. **Additional considerations:** Evaluate removal of hazardous debris. See Perimeter Area entry in this table for AOC 13 locations considered to be potential sources of contamination to downgradient Part A investigation units.
AOC 15: Auxiliary Jacket Cooling Water Pumps	DQO 3 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 16: Former Sandblast Shelter	DQOs satisfied.	(The area around this investigation unit is addressed by the Soil NTCRA)	No	No further action. See Perimeter Area entry in this table for AOC 16 locations considered to be potential sources of contamination to downgradient Part A investigation units.
AOC 17: Onsite Septic System	DQOs satisfied.	N/A	No	No further action
AOC 18: Combine Wastewater Transference Pipelines	DQO 1 data gap: • Lateral and vertical extent not defined in areas where pipelines are not accessible for investigation or left in place.	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A. See Perimeter Area entry in this table for AOC 18 location considered to be a potential source of contamination to downgradient Part A investigation units.
AOC 19: Former Cooling Liquid Mixing and Hotwell Area	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	Surficial contamination is present at the concrete pad of the former chemical mixing additive shed	Yes	**Data gaps and uncertainties:** Deferred. **Additional considerations:** Evaluate remediation options to address surficial contamination at the concrete pad.
AOC 20: Industrial Floor Drains	DQO 1 and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 21: Round Depression near Sludge Drying Bed	DQOs satisfied.	N/A	No	No further action. See Perimeter Area entry in this table for AOC 21 location considered to be a potential source of contamination to downgradient Part A investigation units.

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for Inclusion in CMS/FS	CMS/FS Action and Evaluation
AOC 22: Unidentified Three-Sided Structure	DQO 1 data gap: • Vertical extent not defined for the following analytes at sample location AOC22-1: – CrT – Lead	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
AOC 23: Former Water Conditioning Building	DQO 1 data gap: • Vertical extent not defined for the following analytes at sample location AOC23-3: – CrVI – Lead – Dioxins and furans	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
AOC 24: Stained Area and Former API Oil/Water Separator	DQOs satisfied. There is some uncertainty in the exact location of the AOC 24 stained horizon.	N/A	No	No further action.
AOC 25: Compressor and Generator Engine Basements	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 26: Former Scrubber Oil Sump	DQO 1 deferred: • Lateral and vertical extent not defined for VOCs in soil gas. • Installation of deeper soil vapor probes is deferred until the area becomes available for sampling.	N/A	Deferred	Deferred.
AOC 32: Oil Storage Tanks and Waste Oil Sump	DQO 1, 3, and 5 deferred until the unit becomes available for sampling.	N/A	Deferred	Deferred.
AOC 33: Potential Former Burn Area near AOC 17	DQOs satisfied. Uncertainty on the exact location of AOC 33.	N/A	No	No further action.
Units 4.3, 4.4, and 4.5	DQOs satisfied.	N/A	No	No further action.
Portions of AOC 4 Inside the Fence Line	DQO 1 data gap: • Lateral extent not defined on eastern side of AOC 4 for the following analytes: – PAHs – PCBs – Dioxins and furans DQO 5 data gap: • No samples analyzed for soil physical parameters.	N/A	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** N/A.
Potential Offsite Migration Areas[c]	N/A	Contaminant concentrations in soil in unpaved areas inside the TCS may pose a potentially unacceptable risk to receptors outside the TCS fence line via the surface migration pathway	Yes	**Data gaps and uncertainties:** N/A. **Additional Considerations:** Evaluate measures for the control and prevention of migration of soil from unpaved areas inside the TCS fence line to outside the TCS fence line.
Storm Drain System	DQO 1 data gap: • Vertical extent not defined for the following analytes at SD-08: – CrVI – Copper • Vertical extent not defined for the following analytes at SD-02: – Metals: ✓ Copper ✓ CrVI ✓ CrT ✓ Lead ✓ Mercury – B(a)P equivalents – HMW PAHs – TPH-d	• Presence of damaged pipes • Presence of potential pathway from inside to outside the TCS fence line (Select areas within the Storm Drain System are addressed by the Soil NTCRA)	Yes	**Data gaps and uncertainties:** Assess need for additional sampling. **Additional considerations:** • Evaluate measures to repair damaged portions of the Storm Drain System • Evaluate implementation of storm drain monitoring, regular cleaning, and stormwater BMPs.

Investigation Unit	Data Gaps and Uncertainties [a,b]	Additional Considerations	Consider for Inclusion in CMS/FS	CMS/FS Action and Evaluation
Perimeter Area [d] Associated with AOC 1: • PA-02 • AOC13-19 • AOC13-20 • AOC13-21 • PA-15 • AOC16-4 • AOC16-grit • AOC18-11 • AOC21-OS2 Associated with AOC 10: • PA-18 • PA-19 • PA-20 • PA-21 • AOC22-3 Associated with AOC 11: • SD-24 • PA-09 • PA-10 • PA-11 • PA-12	N/A	The Perimeter Area is a potential source of contamination to downgradient Part A investigation units (Select areas within the Perimeter Area are addressed by the Soil NTCRA)	Yes	**Data gaps and uncertainties:** N/A. **Additional Considerations:** Evaluate runoff and erosion control measures and removal of contaminated soil.

[a] For this exhibit, "DQO" refers to the DQO Decisions, as follows:

Decision 1 (Nature and Extent Determination): Determine the nature and extent of residual soil and/or sediment concentrations resulting from historical compressor station practices. If determination of the full nature and extent of contamination based on sample data is not feasible or is not warranted, address uncertainties in the risk assessment or CMS/FS.

Decision 2 (Data Sufficiency for EPC Calculation): Determine representative EPCs for residual soil and/or sediment contamination resulting from historical compressor station practices that may pose unacceptable risks to current or future human or ecological receptors. If determination of representative EPCs based on sample data is not feasible, address uncertainties in the risk assessment or CMS/FS.

Decision 3 (Threat to Groundwater Determination): Determine whether residual soil concentrations resulting from historical compressor station practices may threaten groundwater. If so, conduct additional site-specific assessment of the threat or implement response actions to mitigate the threat. If not, no further assessment or response actions are necessary to address threat to groundwater.

Decision 4 (Offsite Migration Assessment): Determine whether residual soil concentrations inside the fence line resulting from past compressor station practices pose a potentially unacceptable risk to receptors outside the compressor station fence line via the surface migration pathway. If a potentially unacceptable risk to receptors outside fence line exists, or if determination of potential risk to receptors outside fence line based on sample data is not feasible, develop controls to eliminate migration pathways or remove contaminated soil.

Decision 5 (Data Sufficiency to Support CMS/FS and/or IMs): Determine the site-specific soil property, contaminant distribution, and transport pathway information required to support development of the CMS/FS, remedial design, and IMs, if required. If full determination of site-specific soil property, contaminant distribution, and transport pathway information based on sample data is not feasible, then document impediments and address uncertainties in the risk assessment and/or CMS/FS or IMs.

[b] Exhibit 4-38 in Section 4.5 provides data gap details.

[c] Investigation units in the Potential Offsite Migration Areas with potentially unacceptable risk via the surface migration pathway are:

- AOC 4
- AOC 7
- AOC 8
- AOC 13
- AOC 16
- AOC 18
- AOC 21
- AOC 22
- SWMU 5

[d] Sample locations are assigned to the downgradient investigation units.

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Tables

TABLE 1-1
Summary of Incidental Releases, 1995 through 2023
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Pacific Gas and Electric Company Topock Compressor Station, Needles California

Release Identification	Release Date	Description	Sampling/ Investigations	Removal Actions	Status
Mercury release	October 16, 1995	During the removal of a length of gas meter piping on the east side of the compressor building, elemental mercury apparently contained within the pipe was released to an area of exposed soil measuring about 18 feet long by 9 feet wide.	Confirmatory soil samples were collected following soil excavation and analyzed for mercury.	Impacted soil was excavated and removed to depths up to 4 feet bgs. soil with mercury concentrations exceeding California hazardous waste standards, and/or residential and industrial soil PRGs was removed. A risk assessment indicated that residual concentrations did not pose an unacceptable risk to human health.	No further action proposed. Reports detailing the incident and remediation efforts were submitted to the CSBFD, Hazardous Materials Division on February 7 and June 25, 1996
Cooling tower water release	June 30, 1996	Approximately 200 gallons of non-hazardous water from the lower basin of Cooling Tower A overflowed due to the mechanical failure of a level controller. The overflow entered a facility drain that discharges to Bat Cave Wash. The portion of the wash that was affected by the spill was on PG&E property.	Cooling water samples collected prior to the release indicated an electrical conductivity of 9,000 micromhos and a pH of 7. No soil samples were collected because no samples were requested by the agencies.	Surface soil that was contacted by the overflow (adjacent to the cooling tower basin and in Bat Cave Wash) was removed.	No further action proposed. The Water Board was notified of the release on July 1, 1996, and a report of the incident was submitted on July 18, 1996.
Cooling tower water release	August 4, 1998	Approximately 500 gallons on non-hazardous process water were released from Cooling Tower A due to a fouled screen in a drain return. The process water flowed onto the soil adjacent to the tower, and a small volume of the water flowed down the hill into the Bat Cave Wash Area. All the water evaporated quickly due to the high temperatures.	No samples were collected because the affected area will be investigated as part of the investigation of Bat Cave Wash.	The screen was cleaned and the tower restored to normal operating conditions. No soil removal was conducted.	No further action proposed. The Water Board was notified of the release in a report dated August 11, 1998.
Wastewater release	December 3 - 5, 2000	Approximately 20,000 gallons of non-hazardous facility wastewater was released from a pipeline into Bat Cave Wash. The wastewater normally is transported to the evaporation ponds. The release was caused by a mechanical failure of an air vent valve.	Surface and subsurface soil samples were obtained and analyzed for Title 22 metals, pH, conductivity, TDS, and soluble Cr(VI).	Soil sample analytical results were all below hazardous waste standards and soluble threshold limit concentrations. Soil removal was not warranted.	No further action proposed. DTSC was initially notified on December 7, 2000, and a final closure report was submitted on January 9, 2002.
Oily water release	August 25, 2001	Approximately 300 gallons of oily water were released during the repair of a malfunctioning OWS. The oily water flowed downhill across the site, through a storm drain, and entered Bat Cave Wash. Of the 300 gallons released, about 100 gallons were believed to be compressor lubricating oil and 200 gallons were wastewater.	Samples of soil were taken and analyzed for Title 22 metals, Cr(T), Cr(VI) and TPH.	The storm drain was cleaned and oil-stained soil was removed. Oily water handling equipment was also reconfigured to minimize the potential for further releases. Title 22 metal concentrations were all below residential PRGs, with the exception of one sample which contained Cr(T) above the industrial PRG. No soil removal was conducted.	No further action proposed. DTSC was initially notified on August 25, 2001, and a report was submitted on September 6, 2001.
Compressor K-10 Aqua Tower release	August 24, 2002	Approximately 100 gallons of water containing a dilute, buffered hydrochloric acid and corrosion inhibitor mixture was released onto a paved area of the facility during a descaling operation involving the Aqua Tower and the after-cooler system heat exchanger on Compressor K-10. About 25 gallons trapped in the gutter quickly evaporated. The remaining 75 gallons entered a storm drain on the east side of the facility and emptied into a nearby gully, dampening the soil.	Soil samples were obtained and analyzed for Title 22 metals, pH, and Cr(VI).	Soil samples results were all below hazardous waste standards and USEPA PRGs. Soil removal was not warranted.	No further action proposed. DTSC was initially notified on August 25, 2002, and a final closure report was submitted on October 4, 2002.
Grit tank release	September 1, 2002	Approximately 500 gallons of oily water overflowed an existing berm, traveled through a drainpipe, and then into Bat Cave Wash. The release was due to the failure of a sump pump level controller. The sump pump normally transfers water accumulated in the bermed sump to the facility OWS.	Samples of soil were taken and analyzed for Title 22 metals, Cr(VI), PCBs, and TPH.	The sump pump was repaired and weekly inspection of the equipment was instituted. TPH in the motor oil range was detected at a maximum concentration of 3,000 mg/kg; TPH-diesel was detected at a maximum concentration of 390 mg/kg. All metals were below industrial PRGs, and only a trace level of PCBs (Arocolor 1254 at 0.30 and 0.086 mg/kg respectively) was detected. No additional soil sampling or removal was performed.	No further action proposed. DTSC was initially notified on August 25, 2002, and a final closure report was submitted on October 4, 2002.
Cooling Tower A water release	April 21, 2003	Approximately 1,000 gallons of cooling tower water overflowed the upper cooling tray as the result of high winds. The water flowed from the facility yard and into Bat Cave Wash.	Surface and subsurface soil samples were obtained and analyzed for Title 22 metals, pH, conductivity, and TDS.	Soil sample test results showed that no hazardous constituents were present in affected areas.	No further action proposed. DTSC was notified on April 22, 2002.

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Scrubber pipeline liquids release	March 3, 2004	Pipeline liquids leaked into subsurface soil from a corroded transfer pipe during a routine blowdown of one of the facility gas scrubbers. Approximately 2 gallons of oil were released.	Surface and subsurface soil were analyzed for TPH, BTEX, and PCBs.	The leaking section of transfer pipe was replaced with new pipe. Visibly-stained soil was removed, drummed, and disposed of via a licensed hazardous waster hauler to an approved hazardous waste disposal facility. Confirmation testing indicated that the affected area is free from detectable levels of TPH and PCBs. Xylene was the only BTEX constituent detected (at 5.6 mg/kg).	- No further action proposed. DTSC was initially notified via e mail on March 5, 2004, and a final report was issued on November 15, 2004.
Bat Cave Wash Wastewater release	August 18, 2005	Erosion of soil due to a heavy rainstorm event caused a heavy boulder to fall on a 4" fiberglass pipeline. The pipeline cracked and approximately 1,000 gallons of facility wastewater was released.	The agencies did not request soil samples for this incident.	The pipeline was repaired and eroded soil backfilled. Engineering studies have been conducted and a pipeline replacement/erosion protection plan was developed and is currently being implemented.	No further action proposed. DTSC was notified on August 16, 2005.
Grit tank release	December 19, 2005	A joint failure occurred on the transfer piping between the grit solids settling tank and the OWS. This joint failure resulted in the release of approximately 300 gallons of oily water.	Surface and Subsurface soil samples were obtained and sampled for TPH.	The pipeline was repaired. TPH concentrations ranged from 20 mg/kg to 420 mg/kg. No soil removal was conducted.	No further action proposed. DTSC was notified on Dec. 20, 2005.
Compressor Lubricating Oil Release	December 24, 2005	A rupture occurred in the copper tubing on top of the K-6 compressor lubricating oil filter causing the release of approximately 50 gallons of lubricating oil below the oil filter and onto the soil adjacent to the K-6 compressor building.	Soil samples were obtained on March 8, following excavation of stained soil, and analyzed for Title 22 metals and TPH.	The pipe fitting was replaced. Heavily stained soil was removed form the area on December 27. An additional approximately 10 cubic yards of heavily stained soil was removed in February. None of the soil samples exceeded the California TTLC for Title 22 metals. TPH in the motor oil range was detected in the samples collected (maximum 4,800 mg/kg).	No further action proposed. DTSC was notified on Dec. 25, 2005.
Bat Cave Wash Wastewater Release	December 27, 2005	A vent valve failure resulted in approximately 4,000 gallons of facility waste water (including tower blowdown) being released into Bat Cave Wash.	Surface and Subsurface soil samples were obtained and analyzed for Title 22 metals, pH, conductivity, and TDS.	The vent valve and all associated piping were replaced. Test results show that none of the soil samples exceeded the California TTLC for Title 22 metals.	No further action proposed. DTSC was notified on Dec. 28, 2005.
Jacket Cooling Water Release	January 2, 2006	A valve located on one of the main jacket cooling water tanks failed resulting in the release of approximately 120 gallons of cooling water which contained molybdate based corrosion inhibitors. Approximately 100 gallons of were confined to the secondary containment; 20 gallons of water soaked into the nearby soil.	The agencies did not request soil samples for this incident.	The valve and associated PVC piping were replaced with metal piping and valve. No follow-up sampling was conducted in the area.	No further action proposed. DTSC was notified on Jan. 2, 2006.
PG&E Property Wastewater Release	April 16, 2006	A section of the fiberglass pipe that transports wastewater to the evaporation ponds failed. The failure in the pipe resulted in the release of approximately 200 gallons of facility waste water (including cooling tower blowdown). Approximately 5 gallons of the wastewater were released into Bat Cave Wash.	Wastewater and soil samples were collected n April 16 and 26. Soil samples were analyzed for Title 22 metals, pH, conductivity, and TDS; wastewater samples were analyzed of pH, conductivity, and TDS.	Temporary piping was installed to bypass the section of leaking fiberglass pipe. Test results show that none of the soil samples exceeded the California total threshold limit concentration or industrial PRG for Title 22 metals.	No further action proposed. DTSC was notified on April 18, 2006.
Compressor Lubricating Oil Release	April 23, 2006	Failure of another portion of the copper tubing on top of the K-6 Compressor lubricating oil filter caused the release of approximately 50 gallons of lubricating oil below the filters and onto soil adjacent to K-6 compressor building.	Samples were obtained on April 26 and analyzed for TPH.	TPH in the lubricating oil range was detected in the samples collected (maximum 240,000 mg/kg). Heavily stained soil was removed during the week of April 30, 2006.	No further action proposed. DTSC was notified on April 24, 2006.
PG&E Property Wastewater Release	April 29, 2006	A section of the temporary piping which was installed after the April 16, 2006 spill developed a crack. Approximately 30 gallons of facility wastewater (including cooling tower blowdown) were released. Approximately 25 gallons were confined with the station fence line. Approximately 5 gallons of wastewater ran down an old dirt road leading to Bat Cave Wash.	Soil samples were collected and analyzed for Title 22 metals, pH, conductivity, and TDS.	The temporary piping was repaired.	No further action proposed. DTSC was notified on May 2, 2006.
PG&E Property Wastewater Release	May 2, 2006	Another section of the temporary piping, which was installed after the April 16, 2006 spill, failed during a pressure check following temporary piping repairs. Approximately 200 gallons of wastewater were released but confined to PG&E property.	Soil samples were collected and analyzed for Title 22 metals, pH, conductivity, and TDS.	The temporary piping that resulted in the two small releases in the area (April 16 and April 29 2006) was replaced with a threaded carbon steel pipe. Test results show that none of the soil samples exceeded the California total threshold limit concentration or industrial PRG for Title 22 metals in soil.	No further action proposed. DTSC was notified on May 2, 2006.
Jacket Water Release	December 13, 2007	150 gallons of jacket water was released.	Samples were collected.	Cleanup was conducted.	Cal OES, CUPA, RWQCB, and DTSC were notified.

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Release Identification	Release Date	Description	Sampling/ Investigations	Removal Actions	Status
Synthetic Motor Oil Release	September 14, 2009	A pump shaft gasket failed causing a spill of 6 quarts of synthetic motor oil. The release occurred at I-40 and Park Mojave Road.	N/A	N/A	DTSC was notified: Cal OES 09-6295
Hydraulic Fluid Release	August 25, 2010	A vehicle hydraulic line malfunctioned and 3 gallons of hydraulic fluid was released.	N/A	N/A	DTSC was notified: Cal OES 10-5101
Hydraulic Fluid Release	March 16, 2010	A ruptured hydraulic line release 1 gallon of hydraulic fluid.	N/A	N/A	DTSC was notified: Cal OES 10-1834
Corrosion Inhibitor Release	July 6, 2010	A mixture of Nalco Trac 107 Plus (corrosion inhibitor, 0.05 gallons) and water (24.95 gallons) was released to the ground due to pipe corrosion. Release occurred at intersection of Interstate 40 and Park Moabi Road.	N/A	Release was contained and cleanup completed.	DTSC was notified: Cal OES 10-4082
Hydraulic Fluid Release	August 25, 2010	3 gallons of hydraulic fluid was released.	No samples were collected.	Cleanup was conducted.	Cal OES was notified.
Test Water Release	July 9 and 10, 2011	150 gallons of test water was released on July 9. A second release of 10-15 gallons occurred on July 10.	N/A	N/A	DTSC was notified: Cal OES 11-4146
Jacket Cooling Water Release	January 24, 2012	Approximately 200 gallons of jacket water was released.	N/A	Cleanup was conducted.	Cal OES and RWQCB were notified.
Oily Wastewater Release	September 13, 2012	Approximately 50 gallons of oily wastewater was released.	Samples were collected.	N/A	Cal OES, CUPA, and RWQCB were notified.
Corrosive Alkali Alcohol Release	January 15, 2013	1 gallons of corrosive alkali alcohol was released.	No samples were collected.	Cleanup was conducted.	Cal OES and RWQCB were notified.
Engineer Oil Release	September 18, 2014	Operator error left a valve open allowing the release of 40 gallons of new engine oil.	N/A	N/A	DTSC was notified: Cal OES 14-5280
Pipeline Liquids Release	March 10, 2016	Gas being cleared out of a line resulted in 1 to 2 gallons of pipeline liquids being released onto the ground. The release occurred 1.65 miles west of Highway 95.	N/A	Release was contained and cleanup completed.	DTSC was notified: Cal OES 16-1493
Sodium Hydroxide Release	May 30, 2017	A forklift punctured a large tote at the IM 3 Groundwater Treatment Plant. Released to secondary containment and released 3-5 gallons of sodium hydroxide to gravel.	N/A	Release was contained and site personnel conducted clean up.	DTSC was notified: Cal OES 17-3787
Hydraulic Oil Release	July 11, 2017	A tractor hydraulic line broke resulting in the release of 1 quart of hydraulic oil onto surrounding soil.	N/A	Release was contained and clean up was conducted	DTSC was notified: Cal OES 17-4945
Hydraulic Oil Release	September 12, 2017	A Piece of equipment broke causing a release of 2 gallons of hydraulic oil to soil.	N/A	Release was contained and clean up was conducted	DTSC was notified: Cal OES 17-6649
Release During Groundwater Remedy Construction[a]	October 8, 2018	Weight of drill mud tub and drilling activity caused the ground to cave in, which formed a void. Shifting ground made the seal weak causing the seal to leak, causing a release onto ground. Approximately 2 gallons of freshwater and aquifer water was released in the vicinity of monitoring well MW-L.	N/A	Three 5-gallon buckets of impacted soil was removed and placed into drilling spoil bin.	No further action proposed.
Release During Groundwater Remedy Construction[a]	October 10, 2018	Pressure from the drilling activity caused aquifer/ freshwater water to push up, around the casing and the seal causing a release. Approximately 1-2 gallons of freshwater and aquifer water was released in the vicinity of monitoring well MW-L.	N/A	About 1/2 gallon of impacted soil was removed and placed into a drilling spoil bin.	No further action proposed.
Release During Groundwater Remedy Construction[a]	April 9, 2019	A “blowout” occurred where water in the borehole discharged out the annular space, and onto ground. Approximately 20 gallons of freshwater and aquifer water was released in the vicinity of IRZ-20.	Hexavalent chromium was tested at IM3; result was non-detect.	Impacted soil was left in place.	No further action proposed.
Release During Groundwater Remedy Construction[a]	April 11, 2019	Wastewater storage frac tank overtopped during water transfer operation. Approximately 5-10 gallons of drilling wastewater was released in the vicinity of MW-20 Bench.	Hexavalent chromium was tested at IM3; result was non-detect.	Impacted soil was left in place.	No further action proposed.

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Release During Groundwater Remedy Construction[a]	May 29, 2019	Wastewater from a storage frac tank leaked into the tank containment, and then onto the ground because part of the containment had collapsed. Approximately 200 gallons of drilling wastewater was released in the vicinity of MW-20 Bench.	Hexavalent chromium was tested at IM3; result was 8.1 ppb.	Impacted soil was left in place.	No further action proposed.
Release During Groundwater Remedy Construction[a]	August 27, 2019	Wastewater leaked into containment during water transfer operation. Water released onto ground from a separation between two fiber rolls in the containment wall. Approximately 5 gallons of freshwater and aquifer water was released in the vicinity of RB-3.	N/A	Impacted soil was left in place.	No further action proposed.
Release During Groundwater Remedy Construction[a]	February 6, 2020	Approximately 5 gallons of freshwater released onto ground during a water transfer operation in the vicinity of MW-20 Bench.	N/A	Impacted soil was left in place.	No further action proposed.
Sand Blast Media Release	February 23, 2021	A crew was sand blasting pipes and due to high winds 55 gallons of sand blast media impacted soil. The release occurred at coordinates: 34.704400, -114.545690.	N/A	Release was contained and clean up was conducted.	DTSC was notified: Cal OES 21-1003
Pipeline Liquids Release	June 10, 2021	5 gallons of pipeline liquids were released from a truck to the ground.	N/A	Release was cleaned up by a contractor.	DTSC was notified: Cal OES 21-3106
Release During Groundwater Remedy Construction[a]	June 14, 2021	A few hundred gallons of extracted groundwater from TW-01 was released onto ground during startup of the aquifer test.	TW-1 data showed 1400 ppb of hexavalent chromium.	Impacted soil was excavated and placed on plastic.	No further action proposed.
Jacket Water Release	January 7, 2022	100 gallons of jacket water was released.	Samples were collected.	No cleanup was conducted.	RWQCB was notified.
Release During Groundwater Remedy Construction[a]	April 26, 2022	Drilling wastewater stored in frac tank leaked onto the tank's containment. Water in contained released onto ground through pin holes in the containment. Approximately 3 gallons of drilling wastewater was released at Transwestern Bench.	N/A	Impacted soil will be removed when the leaked tank and containment are removed.	N/A
Engine Lubricating Oil Release	August 24, 2022	30 gallons of engine lubricating oil was released onto concrete and oil because of a crack in a pipe fitting.	N/A	Release was stopped and contained with no waterways impacted. Cleanup was completed.	DTSC was notified: Cal OES 22-4892
Release During Groundwater Remedy Construction[a]	May 4, 2022	A hydraulic line ruptured during drilling at the ER-2 location and due to high winds at the time, hydraulic fluid sprayed droplets on field crew, equipment, nearby creosote plants, wooden rails, temporary water line, and the ground	N/A	Impacted area (nearby bluff, ground) and creosote plants were decontaminated/ sprayed with Simple Green. Oil spots on the temporary water line was wiped down.	No further action proposed.
Release During Groundwater Remedy Construction[a]	May 11, 2022	A dump truck hauling soil for the revegetation project made a U-turn near the C9 North area and bumped into the 12-kV electrical vault. The truck diesel tank leaked and spilled 15 gallons of diesel fuel on the ground and into the electrical vault.	A confirmation soil sample was collected after impacted soil was removed.	About 8 cubic yards of impacted soil was excavated and contained in 39 55-gallon drums. The drums were picked up for offsite disposal. The excavated area was backfilled. The inside of the electrical vault was inspected. A diesel sheen was observed on top of existing water inside the vault. Approximately 200 gallons of water/diesel was removed from the electrical vault and contained in four 55-gallon drums. The drums were picked up for offsite disposal.	No further action proposed.
Release During Groundwater Remedy Construction[a]	September 2, 2022	While backfilling at FW-02B, the seal on the mud tub broke releasing about 2 gallons of drilling and purge water onto secondary containment (plastic) and the ground.	N/A	About 2 gallons of wet soil outside of the drill pad was removed and put into the FW-02 drilling soil bin.	No further action proposed.

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Release During Groundwater Remedy Construction[a]	November 23, 2022	A pipe flange broke in the IRZ-23 well vault causing extracted groundwater from IRZ-9 and IRZ13 to accumulate in the vault. The system alarm programing shut down the IRZ system, as water reached a high level mark in the vault. The Operator bypassed the alarms, which re-started the system, causing the extracted groundwater (approximately 1,400 gallons) to overflow from the IRZ-23 well vault and onto ground.	Soil samples were collected.	Based on results of soil samples, no cleanup was conducted.	No further action proposed.
Release During Groundwater Remedy Construction[a]	February 18, 2023	An automated valve had closed, dead-heading an operating submersible pump in IRZ-15 which led to a gasket on a flange connection discharging spray. 500 gallons of backwash water from IRZ-15 was released. 100 gallons sprayed outside of the containment structure and 400 gallons remained inside the containment structure.	A sample of the backwash water was collected. Results of the released water showed concentrations of Cr at 73 ug/L, Cr6 at 68 ug/L, arsenic below reporting limit of 0.1 ug/L, and low levels of COPCs (selenium, molybdenum).	Due to the low levels of contaminants in the released water, the ongoing IRZ O&M activities at the MW-20 Bench, and the MW-20 Bench designation as an Area of Concern (AOC) in the RFI/RI, PG&E recommended no soil cleanup action for this release at this time.	No further action proposed.
Release During Groundwater Remedy Construction[a]	April 3, 2023	Upon returning from deconning drilling equipment, the drill crew discovered the freshwater hose filling the drill rig tank was left-on and overflowing onto the drill pad. Approximately 100 gallons of freshwater was released onto plastic and subsequently spilledout into the larger drill pad area via a previously unobserved tear in the plastic. The extent of the release is limited to the drill pad (built to support the rig) and did not breach the line of BMPs (i.e., straw wattles).	N/A	After drilling is complete at ER-4, the drill pad soil will be removed and transported to the Soil Processing Yard for characterization	No further action proposed.

Notes
[a] Releases of 1 gallon or more that occurred during groundwater remedy construction are included in this table. Details on smaller releases are provided in monthly progress reports for groundwater remedy construction submitted to DOI and DTSC. E.g., PG&E. 2023. April 2023 *Monthly Progress Report for the Final Groundwater Remedy Construction and Startup, PG&E Topock Compressor Station, Needles, California* . May 10.
Cal OES = California Governor's Office of Emergency Services
CUPA = Certified Unified Program Agencies
DTSC = California Department of Toxic Substances Control
N/A = not available
RWQCB = California Regional Water Quality Control Board

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
MW-09	06/30/97	1	N	---	---	---	---	---	ND (0.05)	15	---	7.2	---	---	---	7.6	---	---	---	---	19.7
	06/30/97	3.5	N	---	---	---	---	---	0.06	4.1	---	3.1	---	---	---	3.6	---	---	---	---	11.8
	06/30/97	3.5	FD	---	---	---	---	---	0.21	7.6	---	3.5	---	---	---	3.7	---	---	---	---	12.6
	06/30/97	6	N	---	---	---	---	---	ND (0.05)	11.8	---	6.4	---	---	---	7.7	---	---	---	---	21
	07/01/97	10	N	---	---	91	---	---	ND (0.05)	42.2	---	6.8	2.7	---	ND (0.2)	9.7	---	---	---	21.8	29
	06/30/97	20	N	---	---	---	---	---	ND (0.05)	9	---	7.1	---	---	---	9.1	---	---	---	---	21.7
	07/01/97	30	N	---	---	28.8	---	---	ND (0.05)	16.3	---	12.4	3.9	---	ND (0.2)	15.3	---	---	---	31	29.4
	06/30/97	40	N	---	---	---	---	---	ND (0.05)	9.7	---	7.5	---	---	---	9	---	---	---	---	22.5
	07/01/97	50	N	---	---	83.8	---	---	ND (0.05)	11.7	---	14.7	3.2	---	ND (0.2)	11.3	---	---	---	20.3	23.3
	06/30/97	60	N	---	---	---	---	---	ND (0.05)	28.8	---	17.4	---	---	---	20.2	---	---	---	---	34.4
	06/30/97	70	N	---	---	---	---	---	ND (0.05)	8.9	---	10	---	---	---	10.2	---	---	---	---	19
	07/01/97	87	N	---	---	94	---	---	ND (0.05)	9.8	---	10.2	8.4	---	ND (0.2)	11.6	---	---	---	33	126
	07/01/97	87	FD	---	---	---	---	---	0.06	11.9	---	11.4	---	---	---	11.7	---	---	---	---	121
SWMU1-1	10/16/08	0 - 0.5	N	ND (2.4) J*	3.5	120	ND (1.2) *	ND (1.2) *	0.524	44	11	12	4.2	ND (0.12) *	ND (1.2)	16	ND (1.2)	ND (1.2)	ND (2.4) *	38	41
	10/16/08	2 - 3	N	ND (2.1) *	3	110	ND (1) *	ND (1)	0.462	67	7.5	9.4	3	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	32	37
	10/16/08	5 - 6	N	ND (2.1) *	ND (1)	94	ND (1) *	ND (1)	14.1	3,200	7.3	9.5	4.5	ND (0.1) *	7.8	12	ND (1)	ND (1)	ND (2.1) *	45	76
	10/16/08	9 - 10	N	ND (2.1) *	2.2	83	ND (1) *	ND (1)	0.907	55	6.9	8.6	1.7	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	27	89
SWMU1-2	10/15/08	0 - 0.5	N	ND (2) *	4.7	110	ND (1) *	ND (1)	ND (0.401)	26	7.3	22	6.5	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	35	37
	10/15/08	2 - 3	N	ND (2) *	2.6	110	ND (1) *	ND (1)	ND (0.404)	36	9.3	10	3.7	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	33	38
	10/15/08	5 - 6	N	ND (2) *	3.2	120	ND (1) *	ND (1)	ND (0.404)	44	8.9	12	6.1	ND (0.1) *	3	16	ND (1)	ND (1)	ND (2) *	33	38
	10/15/08	9 - 10	N	ND (2.1) *	ND (1)	130	ND (1) *	ND (1)	22.8	2,000	10	15	4	ND (0.1) *	2.8	16	ND (1)	ND (1)	ND (2.1) *	41	100
SWMU1-3	10/06/08	0 - 0.5	N	ND (2) *	2.7	94	ND (1) *	ND (1)	ND (0.405)	28	9.9	11	3.9	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	37	33
	10/06/08	2 - 3	N	ND (2.1) *	2.5	130	ND (1) *	ND (1)	ND (0.413)	41	9.2	9.4	2.3	ND (0.1) *	1.5	16	ND (1)	ND (1)	ND (2.1) *	35	38
	10/06/08	2 - 3	FD	ND (2) *	2.8	120	ND (1) *	ND (1)	ND (0.41)	38	8.6	9	2.9	ND (0.1) *	1.4	14	ND (1)	ND (1)	ND (2) *	34	37
	10/06/08	5 - 6	N	ND (2.1) *	ND (1)	140	ND (1) *	ND (1)	22.7	1,300	8.9	11	3.8	ND (0.1) *	4.2	12	ND (1)	ND (1)	ND (2.1) *	37	78
	10/06/08	9 - 10	N	ND (2.1) *	3	60	ND (1) *	ND (1)	1.55 J	96	9.4	11	2.7	ND (0.11) *	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	32	140
	10/06/08	19 - 20	N	ND (2.1) *	5.6	250	ND (2.1) *	ND (1)	ND (0.416)	20	9.1	10	2.9	ND (0.1) *	ND (2.1) *	13	ND (1)	ND (2.1)	ND (4.1) *	34	39
	10/06/08	29 - 30	N	ND (2.1) *	10	59	ND (5.3) *	ND (1.1) *	ND (0.424)	21	8.8	15	2.4	ND (0.1) *	ND (5.3) *	16	ND (1.1)	ND (5.3) *	ND (11) *	32	38
	10/06/08	39 - 40	N	ND (2.1) *	5.3	45	ND (2.1) *	ND (1)	ND (0.424)	22	8.6	8.5	2.7	ND (0.1) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.2) *	31	35
	10/06/08	49 - 50	N	ND (2.1) *	5.6	63	ND (2.1) *	ND (1.1) *	ND (0.405)	25	9.8	12	3.2	ND (0.11) *	ND (2.1) *	17	ND (1.1)	ND (2.1)	ND (4.3) *	35	39
	10/06/08	59 - 60	N	ND (2.1) *	5.3	99	ND (2.1) *	ND (1)	ND (0.418)	38	9.6	14	3	ND (0.1) *	2.1	20	ND (1)	ND (2.1)	ND (4.1) *	37	36
	10/07/08	69 - 70	N	ND (2.1) *	5.2	64	ND (2.1) *	ND (1)	ND (0.42)	29	9.9	14	2.6	ND (0.1) *	ND (2.1) *	19	ND (1)	ND (2.1)	ND (4.2) *	38	38
	10/07/08	79 - 80	N	ND (2.2) *	6.6	350	ND (2.2) *	ND (1.1) *	ND (0.427)	20	8.3	13	3.1	ND (0.11) *	ND (2.2) *	14	ND (1.1)	ND (2.2)	ND (4.5) *	35	39
	10/07/08	79 - 80	FD	ND (2.3) *	5.1	340	ND (1.1) *	ND (1.1) *	ND (0.441)	21	7.3	15	2.6	ND (0.11) *	1.3	14	ND (1.1)	ND (1.1)	ND (2.3) *	31	34

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SWMU1-4	10/15/08	0 - 0.5	N	ND (2) J*	2.9	75	ND (1) *	ND (1)	ND (0.401)	17	5.6	6.8	2.6	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2) *	34	26
	10/15/08	2 - 3	N	ND (2.1) *	ND (1)	130	ND (1) *	ND (1)	4.95	870	7.3	11	3.6	ND (0.1) *	1.7	13	ND (1)	ND (1)	ND (2.1) *	36	72
	10/15/08	5 - 6	N	ND (2.1) *	1.8	100	ND (1) *	ND (1)	1.39	100	7.6	10	1.8	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	36	170
	10/15/08	7 - 8	N	ND (2.1) *	2.1	89	ND (1) *	ND (1)	ND (0.415)	40	7.5	7.6	1.6	ND (0.1) *	ND (1)	9.8	ND (1)	ND (1)	ND (2.1) *	31	120
	10/15/08	9 - 10	N	ND (2.1) *	2.1	95	ND (1) *	ND (1)	ND (0.414)	23	7.5	7.9	1.7	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	33	110
	10/15/08	13 - 14	N	ND (2.1) *	2.4	110	ND (1) *	ND (1)	ND (0.413)	18	7.4	7.1	1.7	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	31	67
SWMU1-5	10/15/08	9 - 10	N	ND (2.1) *	2.6	71	ND (1) *	ND (1)	0.874	47	7	8.3	2.1	ND (0.1) *	ND (1)	9.9	ND (1)	ND (1)	ND (2.1) *	28	100
	10/15/08	13 - 14	N	ND (2.1) *	5.4	58	ND (2.1) *	ND (1)	ND (0.42)	21	8.3	7.9	2.8	ND (0.1) *	ND (2.1) *	13	ND (1)	ND (2.1)	ND (4.2) *	30	42
	10/15/08	13 - 14	FD	ND (2.1) *	5.8	48	ND (2.1) *	ND (1)	ND (0.423)	21	8	8	2.9	ND (0.1) *	ND (2.1) *	13	ND (1)	ND (2.1)	ND (4.2) *	31	44
	10/15/08	15 - 16	N	ND (2.1) *	5.4	63	ND (2.1) *	ND (1)	ND (0.414)	21	8.1	9.1	2.8	ND (0.1) *	ND (2.1) *	13	ND (1)	ND (2.1)	ND (4.1) *	31	34
	10/15/08	19 - 20	N	ND (2.1) *	4.3	180	ND (1.1) *	ND (1.1) *	ND (0.423)	19	8.6	11	3.1	ND (0.11) *	1.5	12	ND (1.1)	ND (1.1)	ND (2.1) *	32	37
SWMU1-6	10/15/08	0 - 0.5	N	ND (2) *	2.4	110	ND (1) *	ND (1)	1.32	220	8.8	11	3.3	ND (0.1) *	1.2	12	ND (1)	ND (1)	ND (2) *	41	42
	10/15/08	2 - 3	N	ND (2) *	2.1	95	ND (1) *	ND (1)	2.15	270	8.1	12	2.6	ND (0.1) *	1.9	13	ND (1)	ND (1)	ND (2) *	39	46
	10/15/08	5 - 6	N	ND (2) *	2.6	81	ND (1) *	ND (1)	ND (0.405)	32	7.7	10	2.6	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	34	29
	10/15/08	9 - 10	N	ND (2) *	2.4	79	ND (1) *	ND (1)	0.531	33	8.3	8.6	1.7	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	33	88
SWMU1-7	10/15/08	0 - 0.5	N	ND (2) *	3.3	98	ND (1) *	ND (1)	ND (0.403)	27	8.7	13	6.6	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	37	38
	10/15/08	2 - 3	N	ND (2) *	ND (1)	97	ND (1) *	ND (1)	6.45	630	9	14	3.6	ND (0.1) *	1.7	15	ND (1)	ND (1)	ND (2) *	36	130
	10/15/08	5 - 6	N	ND (2.1) *	1.2	100	ND (1) *	ND (1)	5.3	330	8.1	20	2.8	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	35	190
	10/15/08	9 - 10	N	ND (2) *	2.4	100	ND (1) *	ND (1)	0.517	51	8.2	9.2	1.9	ND (0.1) *	ND (1)	14 J	ND (1)	ND (1)	ND (2) *	34	150
	10/15/08	9 - 10	FD	ND (2) *	2.4	99	ND (1) *	ND (1)	0.554	47	7.9	8.3	1.6	ND (0.1) *	ND (1)	11 J	ND (1)	ND (1)	ND (2) *	32	150
SWMU1-8	10/15/08	0 - 0.5	N	ND (2) *	2.9	86	ND (1) *	ND (1)	0.618	120	8.2	9.1	4.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	38	36
	10/15/08	2 - 3	N	ND (2.1) *	1.5	100	ND (1) *	ND (1)	22.3	970	8.2	11	3.5	ND (0.1) *	2.2	14	ND (1)	ND (1)	ND (2.1) *	36	160
	10/15/08	5 - 6	N	ND (2.1) *	ND (1)	120	ND (1) *	ND (1)	9.25	1,600	9.2	22	3.3	ND (0.1) *	3.2	16	ND (1)	ND (1)	ND (2.1) *	46	120
	10/15/08	9 - 10	N	ND (2.2) *	3.9	39	ND (1.1) *	ND (1.1) *	ND (0.433)	15	7	7.1	2.8	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	28	32
SWMU1-9	10/14/08	0 - 0.5	N	ND (2.1) *	2.9	110	ND (1) *	ND (1)	0.697	87	8.7	10	2.9	ND (0.11) *	1.4	16	ND (1)	ND (1)	ND (2.1) *	36	37
	10/14/08	2 - 3	N	ND (2.1) *	5.6	140	ND (1) *	ND (1)	ND (0.42)	13	4.5	5.9	5	ND (0.11) *	ND (1)	8.6	ND (1)	ND (1)	ND (2.1) *	21	26
	10/14/08	5 - 6	N	ND (2.1) *	5.8	45	ND (2.1) *	ND (1)	ND (0.417)	26	8.9	8.1	3.1	ND (0.1) *	ND (2.1) *	15	ND (1)	ND (2.1)	ND (4.1) *	34	39
	10/14/08	9 - 10	N	ND (2.1) *	4.3	150	ND (1.1) *	ND (1.1) *	ND (0.425)	22	9	11	3.2	ND (0.1) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	35	38
SWMU1-10	10/14/08	0 - 0.5	N	ND (2) *	2.8	91	ND (1) *	ND (1)	ND (0.401)	19	7.8	11	2.6	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	32
	10/14/08	2 - 3	N	ND (2) *	2.5	100	ND (1) *	ND (1)	ND (0.403)	26	8.8	13	2.2	ND (0.1) *	1.8	13	ND (1)	ND (1)	ND (2) *	31	33
	10/14/08	5 - 6	N	ND (2.1) *	3.9	44	ND (1) *	ND (1)	ND (0.413)	21	10	8.4	2.9	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	36	42
	10/14/08	5 - 6	FD	ND (2.1) *	3.4	48	ND (1) *	ND (1)	ND (0.413)	22	9.4	10	2.9	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	36	41
	10/14/08	9 - 10	N	ND (2.1) *	4.9	51	ND (1.1) *	ND (1.1) *	ND (0.431)	25	9.6	15	3.6	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	37	44
SWMU1-11	10/15/08	0 - 0.5	N	ND (2.1) *	3.6	61	ND (1.1) *	ND (1.1) *	1.81	200	8.4	11	3.8	ND (0.11) *	1.2	15	ND (1.1)	ND (1.1)	ND (2.1) *	34	65
	10/15/08	2 - 3	N	ND (2.1) *	2.2	92	ND (1.1) *	ND (1.1) *	8.82	840	8.1	11	4.3	ND (0.11) *	4	13	ND (1.1)	ND (1.1)	ND (2.1) *	34	120
	10/15/08	5 - 6	N	ND (2.1) *	5.7	37	ND (2.1) *	ND (1.1) *	ND (0.431)	34	9.3	12	3.2	ND (0.11) *	ND (2.1) *	16	ND (1.1)	ND (2.1)	ND (4.3) *	35	96
	10/15/08	9 - 10	N	ND (2.1) *	4.7	36	ND (1.1) *	ND (1.1) *	ND (0.432)	22	9	10	3.4	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	35	43

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SWMU1-12	10/14/08	0 - 0.5	N	ND (2) *	2.8	100	ND (1) *	ND (1)	ND (0.403)	19	8	8.5	2.7	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	31
	10/14/08	2 - 3	N	ND (2) *	4.6	88	ND (2) *	ND (1)	ND (0.406)	24	9.5	11	2.3	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4) *	34	37
	10/14/08	5 - 6	N	ND (2) *	5.5	57	ND (2) *	ND (1)	ND (0.412)	20	9.6	13	2.7	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4.1) *	35	40
	10/14/08	9 - 10	N	ND (2.1) *	10	42	ND (5.2) *	ND (1)	ND (0.419)	21	9.7	11	3.1	ND (0.1) *	ND (5.2) *	16	ND (1)	ND (5.2) *	ND (10) *	34	41
SWMU1-13	10/14/08	0 - 0.5	N	ND (2) J*	3.3	120	ND (1) *	ND (1)	ND (0.407)	23	7.1	14	5.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	35
	10/14/08	2 - 3	N	ND (2) *	9.7	160	ND (5.1) *	ND (1)	ND (0.409)	28	9.3	11	3.5	ND (0.1) *	ND (5.1) *	15	ND (1)	ND (5.1)	ND (10) *	36	39
	10/14/08	2 - 3	FD	ND (2) *	9.3	170	ND (5.1) *	ND (1)	ND (0.411)	27	8.7	11	3.5	ND (0.1) *	ND (5.1) *	14	ND (1)	ND (5.1)	ND (10) *	34	39
	10/14/08	5 - 6	N	ND (2.1) *	6.4	85	ND (2.1) *	ND (1)	ND (0.416)	34	11	13	2.8	ND (0.1) *	ND (2.1) *	20	ND (1)	ND (2.1)	ND (4.1) *	40	44
	10/14/08	9 - 10	N	ND (2.1) *	5.7	49	ND (1) *	ND (1)	ND (0.426)	30	12	16	3.5	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2.1) *	43	45
SWMU1-14	10/14/08	0 - 0.5	N	ND (2) *	2.3	96	ND (1) *	ND (1)	ND (0.404)	20	8.8	8.2	2.6	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	33	33
	10/14/08	2 - 3	N	ND (2) *	2.8	120	ND (1) *	ND (1)	ND (0.408)	19	7.9	14	2.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	31	33
	10/14/08	5 - 6	N	ND (2) *	5.8	73	ND (2) *	ND (1)	ND (0.413)	28	11	17	3.4	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4.1) *	40	42
	10/14/08	9 - 10	N	ND (2.1) *	5.6	67	ND (1) *	ND (1)	ND (0.415)	52	13	35	3.9	ND (0.1) *	ND (1)	32	ND (1)	ND (1)	ND (2.1) *	48	45
SWMU1-15	09/22/08	0 - 0.5	N	ND (2) J*	2.6	130	ND (1) *	ND (1)	1.14	25	8.7	12	4.1	ND (0.1) *	1.9	15	ND (1)	ND (1)	ND (2) *	34	36
	09/22/08	2 - 3	N	ND (2.1) *	2.8	130	ND (1.1) *	ND (1.1) *	ND (0.422)	23	9.3	11	3	ND (0.11) *	1.2	17	ND (1.1)	ND (1.1)	ND (2.1) *	32	34
	09/22/08	5 - 6	N	ND (2.1) *	4.5	100	ND (2.1) *	ND (1.1) *	ND (0.424)	41	12	18	4.5	ND (0.11) *	ND (2.1) *	28	ND (1.1)	ND (2.1)	ND (4.3) *	44	46
	09/22/08	9 - 10	N	ND (2.1) *	4.7	230	ND (2.1) *	ND (1)	ND (0.419)	58	15	24	4.4	ND (0.11) *	ND (2.1) *	43	ND (1)	ND (2.1)	ND (4.1) *	55	50
	09/22/08	9 - 10	FD	ND (2.1) *	5.1	190	ND (2.1) *	ND (1)	ND (0.42)	60	15	23	4.5	ND (0.1) *	ND (2.1) *	44	ND (2.1) *	ND (2.1)	ND (4.1) *	53	50
	09/22/08	19 - 20	N	ND (2.1) *	5.5	81	ND (2.1) *	ND (1.1) *	ND (0.425)	51	14	41	4.5	ND (0.11) *	ND (2.1) *	37	ND (1.1)	ND (2.1)	ND (4.2) *	53	50
	09/22/08	29 - 30	N	ND (2.1) *	7.4	110	ND (5.3) *	ND (1.1) *	ND (0.433)	54	14	23	5.4	ND (0.11) *	ND (5.3) *	39	ND (1.1)	ND (5.3) *	ND (11) *	51	54
	09/22/08	39 - 40	N	ND (2.1) *	4	56	ND (1) *	ND (1)	ND (0.422)	40	12	23	3	ND (0.1) *	ND (1)	27	ND (1)	ND (1)	ND (2.1) *	48	47
	09/22/08	49 - 50	N	ND (2.2) *	6.7	160	ND (2.2) *	ND (1.1) *	ND (0.439)	55	13	25	5.4	ND (0.11) *	ND (2.2) *	39	ND (1.1)	ND (2.2)	ND (4.3) *	57	59
	09/22/08	59 - 60	N	ND (2.1) *	8.4	110	ND (5.3) *	ND (1.1) *	ND (0.449)	47	14	23	3	ND (0.1) *	ND (5.3) *	34	ND (1.1)	ND (5.3) *	ND (11) *	51	49
	09/22/08	59 - 60	FD	ND (2.1) *	5.6	110	ND (2.1) *	ND (1.1) *	ND (0.411)	44	15	24	4.3	ND (0.1) *	ND (2.1) *	31	ND (1.1)	ND (2.1)	ND (4.2) *	52	47
	09/22/08	69 - 70	N	ND (2.1) *	6.1	47	ND (1.1) *	ND (1.1) *	ND (0.43)	39	13	25	3.8	ND (0.11) *	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1) *	42	53
	09/22/08	79 - 80	N	ND (2.1) *	4.4	94	ND (1.1) *	ND (1.1) *	ND (0.43)	28	11	20	3.2	ND (0.11) *	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1) *	38	60
	09/23/08	89 - 90	N	ND (4) *	3.7	560	ND (2) *	ND (2) *	ND (0.4)	6.5	6.2	ND (4)	ND (2)	ND (0.1) *	ND (2) *	7	ND (2) *	ND (2)	ND (4) *	15	21
SWMU1-16	09/21/08	0 - 0.5	N	ND (2) *	2.6	83	ND (1) *	ND (1)	ND (0.405)	10	4.5	5.2	2.3	ND (0.099) *	ND (1)	6.8	ND (1)	ND (1)	ND (2) *	20	21
	09/21/08	2 - 3	N	ND (2) *	1.7	99	ND (1) *	ND (1)	ND (0.408)	18	7.9	8.3	2	ND (0.1) *	1	11	1.1	ND (1)	ND (2) *	32	34
	09/21/08	5 - 6	N	ND (2) *	1.6	110	ND (1) *	ND (1)	ND (0.406)	18	7.8	8.9	2	ND (0.1) *	ND (1)	11	1.6	ND (1)	ND (2) *	32	35
SWMU1-17	09/21/08	0 - 0.5	N	ND (2) *	3.7	210	ND (2) *	ND (1)	ND (0.403)	27	11	16	3.5	ND (0.1) *	ND (2) *	19	ND (2) *	ND (2)	ND (4) *	47	46
	09/21/08	2 - 3	N	ND (2) *	4.3	180	ND (2) *	ND (1)	ND (0.405)	29	10	12	3.9	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4) *	40	40
	09/21/08	5 - 6	N	ND (2) *	2.8	130	ND (2) *	ND (1)	ND (0.407)	29	10	12	3.1	ND (0.1) *	2.4	18	ND (1)	ND (2)	ND (4) *	39	44
	09/21/08	9 - 10	N	ND (2) *	3.9	110	ND (2) *	ND (1)	ND (0.408)	43 J	13	26	4.4	ND (0.1) *	ND (2) *	32	ND (2) *	ND (2)	ND (4) *	46	41
	09/21/08	9 - 10	FD	ND (2) *	4.1	110	ND (2) *	ND (1)	ND (0.408)	53 J	14	24	4.7	ND (0.1) *	ND (2) *	37	ND (1)	ND (2)	ND (4) *	51	46

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SWMU1-18	01/07/16	0 - 1	N	ND (2.2) *	1.7	93	ND (1.1) *	ND (1.1) *	2.6	16	7.7	7.4	2	0.28	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	29	30
	01/07/16	2 - 3	N	ND (2.1) *	2.9	150	ND (1.1) *	ND (1.1) *	ND (0.22)	26	9.4	20	2.5	0.27	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.1) *	38	40
	01/07/16	5 - 6	N	ND (2.2) *	1.5	83	ND (1.1) *	ND (1.1) *	ND (0.22)	110	7	8.5	2.1	0.3	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	26	130
	01/07/16	9 - 10	N	ND (2.1) *	3.5	55	ND (1.1) *	ND (1.1) *	ND (0.21)	41	12	17	2.6	0.34	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1) *	47	43
	01/07/16	14 - 15	N	ND (2.1) *	2.9	62 J	ND (1.1) *	ND (1.1) *	ND (0.21)	48	12	19 J	2.4	0.35	ND (1.1)	38	ND (1.1)	ND (1.1)	ND (2.1) *	45	41
	01/07/16	14 - 15	FD	ND (2.1) *	3.2	94 J	ND (1.1) *	ND (1.1) *	ND (0.21)	50	12	25 J	3.5	0.29	ND (1.1)	40	ND (1.1)	ND (1.1)	ND (2.1) *	48	44
	01/07/16	19 - 20	N	ND (2.2) *	3.4	110	ND (1.1) *	ND (1.1) *	ND (0.22)	50	14	21	3.6	0.33	ND (1.1)	41	ND (1.1)	ND (1.1)	ND (2.2) *	53	49
	01/07/16	29 - 30	N	ND (2.1) *	2.5	59	ND (1.1) *	ND (1.1) *	ND (0.21)	29	8.9	22	2	0.29	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.1) *	33	33
	01/07/16	39 - 40	N	ND (2.2) *	3.3	96	ND (1.1) *	ND (1.1) *	ND (0.21)	42	12	19	2.9	0.29	ND (1.1)	28	ND (1.1)	ND (1.1)	ND (2.2) *	50	44
	01/08/16	49 - 50	N	ND (2.4) J*	4.6	66 J	ND (1.2) *	ND (1.2) *	ND (0.24)	33 J	11	19	4.2	0.27	ND (1.2)	28	ND (1.2) J	ND (1.2)	ND (2.4) *	47	46 J
	01/08/16	59 - 60	N	ND (2.6) *	5.6	84	ND (1.3) *	ND (1.3) *	ND (0.26)	27	10	16	5.6	0.31	ND (1.3)	22	ND (1.3)	ND (1.3)	ND (2.6) *	44	54
	01/08/16	69 - 70	N	ND (2.3) *	2.8	72	ND (1.1) *	ND (1.1) *	ND (0.23)	21	9.1	13	2.5	ND (0.12) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.3) *	37	41
	01/08/16	79 - 80	N	ND (2.5) *	3.2	41	ND (1.3) *	ND (1.3) *	ND (0.25)	28	9	17	2.1	ND (0.13) *	ND (1.3)	22	ND (1.3)	ND (1.3)	ND (2.5) *	37	37
SWMU1-19	01/09/16	0 - 1	N	ND (2.1) *	7.8	86	ND (1) *	ND (1)	1.3	1,400	5.7	10	3.5	ND (0.1) *	1.1	7.7	ND (1)	ND (1)	ND (2.1) *	34	160
	01/09/16	2 - 3	N	ND (2.1) *	1.9	89	ND (1.1) *	ND (1.1) *	22	23	6.6	8.8	1.8	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	26	34
	01/09/16	5 - 6	N	ND (2.1) *	3.5	74	ND (1) *	ND (1)	4.9	680	5.7	9.9	1.8	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2.1) *	32	87
	01/09/16	9 - 10	N	ND (2) *	3.8	110	ND (1) *	ND (1)	22	2,100	6.1	18	2.4	ND (0.1) *	ND (1)	9.2	ND (1)	ND (1)	ND (2) *	37	120
	01/09/16	14 - 15	N	ND (2.1) *	1.6	67	ND (1) *	ND (1)	6.8	240	6.3	23	1.6	ND (0.1) *	ND (1)	9.7	ND (1)	ND (1)	ND (2.1) *	27	150
	01/09/16	19 - 20	N	ND (2.2) *	5.2	53	ND (1.1) *	ND (1.1) *	ND (0.21)	24 J	8	12	3.3	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2) *	34	120
	01/09/16	19 - 20	FD	ND (2.1) *	2.5	64	ND (1.1) *	ND (1.1) *	ND (0.21)	31 J	8.5	11	1.9	ND (0.11) *	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1) *	38	110
	01/09/16	29 - 30	N	ND (2.1) *	2.4	33	ND (1.1) *	ND (1.1) *	ND (0.21)	19	9.1	59	1.8	ND (0.11) *	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.1) *	34	35
	01/09/16	39 - 40	N	ND (2.1) *	2.5	22	ND (1) *	ND (1)	ND (0.21)	16	7.1	14	1.7	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	29	33
	01/09/16	49 - 50	N	ND (2.1) *	2.7	87	ND (1.1) *	ND (1.1) *	ND (0.21)	32	11	28	2.2	ND (0.1) *	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.1) *	43	40
	01/09/16	59 - 60	N	ND (2.1) *	2.7	66	ND (1.1) *	ND (1.1) *	ND (0.21)	29	8.9	16	2.5	0.24	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1) *	34	38
	01/10/16	69 - 70	N	ND (2.1) *	3.6	130	ND (1) *	ND (1)	ND (0.21)	22	9.2	17	2.6	0.23	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	36	38
	01/10/16	79 - 80	N	ND (2.1) *	2.5	85	ND (1.1) *	ND (1.1) *	ND (0.21)	16	8.2	10	1.6	0.27	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	31	34
SWMU1-20	01/13/16	14 - 15	N	ND (2.1) *	1.9	68	ND (1) *	ND (1)	8.9	190	8.2	12	1.6	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	30	110
	01/13/16	14 - 15	FD	ND (2.1) *	1.7	76	ND (1) *	ND (1)	7.9	200	9.7	9.9	2.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	32	98
	01/13/16	19 - 20	N	ND (2.1) *	2.2	69	ND (1) *	ND (1)	ND (0.21)	23	7.9	8	1.8	ND (0.11) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	31	37
	01/13/16	29 - 30	N	ND (2.1) *	2	63	ND (1) *	ND (1)	ND (0.21)	14	9	11	1.2	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	27	30
	01/14/16	39 - 40	N	ND (2.1) *	2.4	29	ND (1) *	ND (1)	ND (0.21)	18	8.6	13	1.7	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	32	36
	01/14/16	49 - 50	N	ND (2.2) *	2.3	28	ND (1.1) *	ND (1.1) *	ND (0.22)	15	8.6	8	2	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	31	37
	01/14/16	59 - 60	N	ND (2.1) *	2.1	32	ND (1) *	ND (1)	ND (0.21)	21	7.7	38	1.2	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	29	32
	01/14/16	69 - 70	N	ND (2) *	1.9	56	ND (1) *	ND (1)	ND (0.2)	23	9.4	10	1.2	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	34	34
	01/14/16	79 - 80	N	ND (2.1) *	2.5	100	ND (1) *	ND (1)	ND (0.21)	27	10	11	1.7	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	39	41

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
SWMU1-21	01/26/16	14 - 15	N	ND (2.1) *	1.9	64	ND (1) *	ND (1)	0.5	19	7.5	13	1.4	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	31	78
	01/26/16	19 - 20	N	ND (2) *	ND (1)	77	ND (1) *	ND (1)	0.3	16	7.4	8.7	ND (1)	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	29	69
	01/27/16	29 - 30	N	ND (2.1) *	2.5	50	ND (1) *	ND (1)	ND (0.21)	16	8	11	1.3	ND (0.1) *	ND (1)	12	ND (1) J	ND (1)	ND (2.1) *	28	34
	01/27/16	39 - 40	N	ND (2.1) *	2.3	35	ND (1) *	ND (1)	ND (0.21)	14	8.1	7.9	1.3	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	29	37
	01/27/16	49 - 50	N	ND (2.1) *	2.6	26	ND (1) *	ND (1)	ND (0.21)	14	7.7	9	1.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	27	33
	01/27/16	59 - 60	N	ND (2.1) *	3.1	45	ND (1.1) *	ND (1.1) *	ND (0.21)	22	9.6	12	1.7	ND (0.1) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	32	41
	01/27/16	69 - 70	N	ND (2.1) *	2.6	54	ND (1) *	ND (1)	ND (0.21)	23	9.2	10	1.5	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2.1) *	34	40
	01/27/16	79 - 80	N	ND (2.2) *	3.1	330 J	ND (1.1) *	ND (1.1) *	ND (0.22)	19	7.6	16	1.2	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	29	32
	01/27/16	79 - 80	FD	ND (2.2) *	3.4	120 J	ND (1.1) *	ND (1.1) *	ND (0.22)	17	7.5	11	1.3	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2) *	29	35
SWMU1-22	12/17/15	0 - 1	N	ND (2) *	3.6	140	ND (1) *	ND (1)	ND (0.2)	18	---	12	6.5	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	26	33
SWMU1-23	12/17/15	0 - 1	N	ND (2) *	2.7	120	ND (1) *	ND (1)	0.36	23	7.2	11	7.5	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	31	39
SWMU1-24	12/17/15	0 - 1	N	ND (2) *	3.5	170	ND (1) *	ND (1)	1.6	55	7.1	13	6.5	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	29	44
SWMU1-25	01/26/16	0 - 1	N	18	14	210	ND (1) *	ND (1)	42	2,000	7.6	12	4.4	ND (0.1) *	20	12	ND (1)	ND (1)	ND (2.1) *	38	60
	01/26/16	2 - 3	N	2.4	2.7	53	ND (1.1) *	ND (1.1) *	9.5	450	8.5	13	1.6	ND (0.11) *	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1) *	35	200
	01/26/16	5 - 6	N	ND (2.1) *	2.5	30	ND (1.1) *	ND (1.1) *	2.3	200	7.4	14	1.6	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	29	170
	01/26/16	9 - 10	N	ND (2.1) *	3.1	24	ND (1.1) *	ND (1.1) *	ND (0.21)	17	8.5	11	2.1	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	29	37
SWMU1-28	02/14/17	0 - 0.5	N	ND (2) *	1.7	140	ND (1) *	1.3	ND (0.2)	15	7.1	9.1	1.6	ND (0.1) *	ND (1)	9.7	ND (1) J	ND (1) J	ND (2) J*	27	31
	02/14/17	0 - 0.5	FD	ND (2) *	1.9	140	ND (1) *	1.4	ND (0.2)	16	7.7	13	1.5	ND (0.1) *	ND (1)	10	ND (1) J	ND (1) J	ND (2) J*	28	34
	02/14/17	2 - 3	N	ND (2) *	1.4	97	ND (1) *	1.2	ND (0.2)	13	6.6	8.3	3	ND (0.1) *	ND (1)	8.3	ND (1) J	ND (1) J	ND (2) J*	24	31
SWMU1-29	02/16/17	0 - 0.5	N	ND (2) *	ND (1)	70	ND (1) *	1.5	ND (0.2)	19	7.3	8.5	1.2	ND (0.1) *	ND (1)	9.9	ND (1) J	ND (1) J	ND (2) J*	33	28 J
	02/16/17	2 - 3	N	13	7.2	89	ND (1) *	1.1	17	1,100	5.6	8.7	2.3	ND (0.1) *	1.2	8	ND (1) J	ND (1) J	ND (2.1) J*	29	41
	02/16/17	5 - 6	N	2.6	1.6	73	ND (1) *	1.2	5.6	270	7.2	11	ND (1)	ND (0.1) *	ND (1)	11	ND (1) J	ND (1) J	ND (2.1) J*	26	33
	02/16/17	9 - 10	N	ND (2.1) *	ND (1)	54	ND (1) *	1.2	1.4	98	7.2	13	1.1	ND (0.1) *	ND (1)	9.7	ND (1) J	ND (1) J	ND (2.1) J*	27	140
SWMU1-WP-1h	10/07/08	0 - 0.5	N	ND (2.1) *	4.5	53	ND (1) *	ND (1)	ND (0.418)	25	8.3	11	3.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	32	38
	10/07/08	2 - 3	N	ND (2.1) *	4.4	40	ND (1) *	ND (1)	ND (0.418)	17	7.2	8.9	2.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	30	34
	10/07/08	5 - 6	N	ND (2.1) *	3.7	23	ND (1.1) *	ND (1.1) *	ND (0.417)	15	7	7.1	2.5	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	26	39
	10/07/08	9 - 10	N	ND (2.1) *	3.8	29	ND (1) *	ND (1)	ND (0.422)	28	8	8.7	2.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	29	58
SWMU1-WP-3a	10/14/08	0 - 0.5	N	ND (2.1) *	3.1	100	ND (1.1) *	ND (1.1) *	ND (0.419)	27	7.4	11	3.6	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	33	40
	10/14/08	2 - 3	N	ND (2.1) *	2.3	100	ND (1) *	ND (1)	ND (0.419)	20	8	9.4	2.3	ND (0.11) *	1.1	11	ND (1)	ND (1)	ND (2.1) *	38	34
	10/14/08	5 - 6	N	ND (2.1) *	6	68	ND (2.1) *	ND (1.1) *	ND (0.425)	27	14	15	6.2	ND (0.11) *	ND (2.1) *	17	ND (1.1)	ND (2.1)	ND (4.2) *	37	45
	10/14/08	7 - 8	N	ND (2.1) *	6	69	ND (2.1) *	ND (1)	ND (0.417)	23	9.3	11	3.4	ND (0.1) *	ND (2.1) *	18	ND (1)	ND (2.1)	ND (4.1) *	36	39
	10/14/08	9 - 10	N	ND (2.1) *	12	120	ND (5.1) *	ND (1)	ND (0.415)	66	14	21	2.8	ND (0.1) *	ND (5.1) *	45	ND (1)	ND (5.1)	ND (10) *	51	46
	10/14/08	9 - 10	FD	ND (2.1) *	12	120	ND (5.1) *	ND (1)	ND (0.414)	66	15	22	2.7	ND (0.1) *	ND (5.1) *	45	ND (1)	ND (5.1)	ND (10) *	52	47
	10/14/08	11 - 12	N	ND (2.1) *	5.1	56	ND (1) *	ND (1)	ND (0.421)	30	12	27	4	ND (0.1) *	ND (1)	23	ND (1)	ND (1)	ND (2.1) *	40	40
	10/14/08	13 - 14	N	ND (2.1) *	5.5	40	ND (1) *	ND (1)	ND (0.426)	28	10	31	3.8	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2.1) *	39	40
SWMU1-WP-3h	10/07/08	0 - 0.5	N	ND (2.1) *	5.1	40	ND (2.1) *	ND (1.1) *	ND (0.433)	17	7.4	6.3	1.8	ND (0.11) *	ND (2.1) *	11	ND (1.1)	ND (2.1)	ND (4.3) *	25	33
	10/07/08	2 - 3	N	ND (2) *	2.4	89	ND (1) *	ND (1)	ND (0.404)	17	7.6	8.6	2.1	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	34
	10/07/08	5 - 6	N	ND (2) *	2.8	92	ND (1) *	ND (1)	ND (0.404)	21	8.7	7.8	2.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	31	36

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SWMU1-WP-5a	10/05/08	0 - 0.5	N	ND (2) J*	2.4	91	ND (1) *	ND (1)	ND (0.405)	19	8	11	3.9	ND (0.1) *	1	11	ND (1)	ND (1)	ND (2) *	36	35
	10/05/08	2 - 3	N	ND (2) *	2.3	100	ND (1) *	ND (1)	ND (0.408)	19	8.9	9.2	2.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	35
	10/05/08	5 - 6	N	ND (2.1) *	6.7	120	ND (2.1) *	ND (1)	ND (0.419)	53	13	17	3.9	ND (0.1) *	ND (2.1) *	38	ND (1)	ND (2.1)	ND (4.1) *	52	42
	10/05/08	5 - 6	FD	ND (2.1) *	12	120	ND (5.2) *	ND (1)	ND (0.42) J	58	15	19	3.5	ND (0.1) *	ND (5.2) *	42	ND (1)	ND (5.2) *	ND (10) *	56	46
	10/05/08	7 - 8	N	ND (2.1) *	6.6	100	ND (2.1) *	ND (1)	ND (0.416)	53	12	18	4.1	ND (0.1) *	ND (2.1) *	37	ND (1)	ND (2.1)	ND (4.1) *	44	41
	10/05/08	9 - 10	N	ND (2.1) *	6.4	76	ND (2.1) *	ND (1)	ND (0.421)	43	13	21	4.2	ND (0.1) *	ND (2.1) *	33	ND (1)	ND (2.1)	ND (4.2) *	47	47
	10/05/08	11 - 12	N	ND (2.1) *	6.8	50	ND (2.1) *	ND (1)	ND (0.416)	36	11	26	3.5	ND (0.1) *	ND (2.1) *	26	ND (1)	ND (2.1)	ND (4.1) *	43	42
	10/05/08	13 - 14	N	ND (2.1) *	4.9	92	ND (1) *	ND (1)	ND (0.422)	27	11	13	3.5	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2.1) *	40	52
SWMU1-WP-5h	10/07/08	0 - 0.5	N	ND (2.2) J*	3.4	73	ND (1.1) *	ND (1.1) *	ND (0.43)	14	12	12	2.7	ND (0.11) *	ND (1.1)	9.5	ND (1.1)	ND (1.1)	ND (2.2) *	23	31
	10/07/08 ⊖	2 - 3	N	ND (2.1) *	5.3	130	ND (2.1) *	ND (1.1) *	ND (0.435)	33	8.7	12	4.9	ND (0.11) *	ND (2.1) *	14	ND (1.1)	ND (2.1)	ND (4.3) *	31	46
	10/07/08	5	N	ND (2.1) *	3.2	110	ND (1) *	ND (1)	ND (0.415)	23	8.5	11	3.3	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	33	40
SWMU1-WP-6a	10/05/08	0 - 0.5	N	ND (2) *	2.9	100	ND (1) *	ND (1)	ND (0.405)	32	9.3	10	7.2	ND (0.1) *	2.5	15	ND (1)	ND (1)	ND (2) *	30	35
	10/05/08	2 - 3	N	ND (2) *	2.3	81	ND (1) *	ND (1)	ND (0.404)	19	8.8 J	10	2.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	34	35
	10/05/08	2 - 3	FD	ND (2) *	2.4	82	ND (1) *	ND (1)	ND (0.403)	19	11 J	9.2	2.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	34	33
	10/05/08	5 - 6	N	ND (2.1) *	6.2	180	ND (2.1) *	ND (1)	ND (0.413)	41	12	19	3.2	ND (0.1) *	ND (2.1) *	27	ND (1)	ND (2.1)	ND (4.1) *	43	44
	10/05/08	7 - 8	N	ND (2.1) *	6	66	ND (2.1) *	ND (1)	ND (0.414)	35	10	18	3.5	ND (0.1) *	ND (2.1) *	24	ND (1)	ND (2.1)	ND (4.1) *	40	38
	10/05/08	9 - 10	N	ND (2) *	11	98	ND (5.1) *	ND (1)	ND (0.412)	26	11	14	2.4	ND (0.1) *	ND (5.1) *	19	ND (1)	ND (5.1)	ND (10) *	40	39
	10/05/08	11 - 12	N	ND (2) *	4.3	71	ND (1) *	ND (1)	ND (0.411)	51	10	17	3.1	ND (0.1) *	3.6	22	ND (1)	ND (1)	ND (2) *	38	35
	10/05/08	13 - 14	N	ND (2) *	6.7	110	ND (2) *	ND (1)	ND (0.41)	60	14	15	3.6	ND (0.1) *	ND (2) *	43	ND (1)	ND (2)	ND (4.1) *	55	43
SWMU1-WP-6h	10/06/08 ⊖	0 - 0.5	N	ND (2) *	4.7	150	ND (2) *	ND (1)	4.98	130	8.8	15	5.5	ND (0.1) *	ND (2) *	17	ND (1)	ND (2)	ND (4.1) *	37	87
	10/06/08	2 - 3	N	ND (2.1) *	5.5	70	ND (1) *	ND (1)	0.538	23	19	61	6.6	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	36	34
	10/06/08	5 - 6	N	ND (2) *	2.7	100	ND (1) *	ND (1)	ND (0.406)	19	8	10	2.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	34	36
	10/06/08	5 - 6	FD	ND (2) *	2.7	100	ND (1) *	ND (1)	ND (0.405)	20	8.1	12	2.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	37
	10/06/08	9 - 10	N	ND (2.1) *	4.1	100	ND (1.1) *	ND (1.1) *	ND (0.409)	41	9.4	23	3.5	ND (0.11) *	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1) *	36	39
SWMU1-WP-7	10/06/08	0 - 0.5	N	ND (2.1) *	ND (5.3)	160	ND (5.3) *	ND (1.1) *	0.566	2,600	7.2	11	13	ND (0.11) *	7.1	15	ND (1.1)	ND (5.3) *	ND (11) *	35	88
	10/06/08 ⊖	2 - 3	N	ND (2.2) *	6	190	ND (2.2) *	ND (1.1) *	18.2	1,200	7.4	16	5.7	ND (0.11) *	3.4	17	ND (1.1)	ND (2.2)	ND (4.4) *	35	56
	10/06/08	5 - 6	N	ND (2.1) *	3	110	ND (1) *	ND (1)	6.17	21	8	11	2.7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	31	34
	10/06/08	9 - 10	N	ND (2.1) *	3	82	ND (1) *	ND (1)	ND (0.417)	23	7.2	15	2.7	ND (0.11) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	30	31
SWMU1-WP-8	10/06/08	0 - 0.5	N	ND (2) *	5.4	150	ND (2) *	ND (1)	ND (0.402)	35	7.5	13	6.9	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4.1) *	31	47
	10/06/08	2 - 3	N	ND (2.1) *	5.1	160	ND (2.1) *	ND (1.1) *	0.541	26	7.9	10	4.1	ND (0.1) *	ND (2.1) *	17	ND (1.1)	ND (2.1)	ND (4.2) *	32	32
	10/06/08	5 - 6	N	ND (2) *	2.7	130	ND (1) *	ND (1)	ND (0.407)	19	8.3	10	2.7	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	34	38
	10/06/08	9 - 10	N	ND (2) J*	2.9	120	ND (1) *	ND (1)	ND (0.411)	22	7.9	9.8	2.6	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	38	38

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SWMU1-WP-9	09/21/08	0 - 0.5	N	ND (2) *	2.4	100	ND (1) *	ND (1)	ND (0.406)	26	7.6	8.2	2.9	ND (0.1) *	2.1	12	ND (1)	ND (1)	ND (2) *	30	33
	09/21/08	2 - 3	N	ND (2) *	2.7	150 J	ND (1) *	ND (1)	ND (0.407)	34 J	9.5 J	15	2.3	ND (0.1) *	1.2	20 J	2.5	ND (1)	ND (2) *	35	34
	09/21/08	2 - 3	FD	ND (2.1) *	2.1	1,900 J	ND (1) *	ND (1)	ND (0.409)	20 J	5.9 J	10	2.7	ND (0.1) *	ND (1)	12 J	ND (1)	ND (1)	ND (2.1) *	32	34
	09/21/08	5 - 6	N	ND (2) *	4.2	75	ND (2) *	ND (1)	ND (0.416)	39	13	15	3.2	ND (0.1) *	ND (2) *	26	1.3	ND (2)	ND (4.1) *	49	43
	09/21/08	7 - 8	N	ND (2.1) *	4.8	58	ND (2.1) *	ND (1)	ND (0.416)	28	10	14	3.5	ND (0.1) *	ND (2.1) *	20	ND (1)	ND (2.1)	ND (4.1) *	39	45
	09/21/08	9 - 10	N	ND (2) *	4.7	77	ND (2) *	ND (1)	ND (0.411)	37	12	15	3.3	ND (0.1) *	ND (2) *	28	ND (1)	ND (2)	ND (4.1) *	43	43
	09/21/08	11 - 12	N	ND (2.1) *	7.1	88	ND (5.2) *	ND (1)	ND (0.422)	68	16	23	4	ND (0.11) *	ND (5.2) *	51	ND (1)	ND (5.2) *	ND (10) *	56	56
	09/21/08	13 - 14	N	ND (2.1) *	5.3	91	ND (2.1) *	ND (1)	ND (0.423)	60	15	22	4.9	ND (0.11) *	ND (2.1) *	46	ND (1)	ND (2.1)	ND (4.2) *	56	52
SWMU1-WP-10	10/05/08	0 - 0.5	N	ND (2.1) *	4.4	150	ND (2.1) *	ND (1)	6.64	540	7.1	11	8.3	ND (0.1) *	ND (2.1) *	15	ND (1)	ND (2.1)	ND (4.1) *	32	56
	10/05/08 ⊖	2 - 3	N	ND (2.1) *	5.3	180	ND (5.2) *	ND (1)	3.85	1,400	8.8	18	10	ND (0.1) *	ND (5.2) *	16	ND (1)	ND (5.2) *	ND (10) *	39	360
	10/05/08	5 - 6	N	ND (2.1) *	5.5	81	ND (2.1) *	ND (1.1) *	0.494 J	50	8	12	3.6	ND (0.11) *	ND (2.1) *	15	ND (1.1)	ND (2.1)	ND (4.3) *	33	53
	10/05/08	9 - 10	N	ND (2.1) *	4.8	110	ND (2.1) *	ND (1.1) *	2.31	250	9.4	11	5.4	ND (0.11) *	ND (2.1) *	18	ND (1.1)	ND (2.1)	ND (4.2) *	33	83
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	ND (2) J*	2.6	110	ND (1) *	ND (1)	ND (0.41)	25	10	11	2.8	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	38	39
	10/05/08	2 - 3	N	ND (2) *	2	92	ND (1) *	ND (1)	ND (0.411)	18	9.2	12	2.9	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	35
	10/05/08	5 - 6	N	ND (2.1) *	4.1	82	ND (1.1) *	ND (1.1) *	ND (0.431)	26	11	16	3.4	ND (0.11) *	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1) *	38	40
	10/05/08	5 - 6	FD	ND (2.1) *	4.2	80	ND (1.1) *	ND (1.1) *	ND (0.438)	26	10	15	3.7	ND (0.11) *	1.1	19	ND (1.1)	ND (1.1)	ND (2.1) *	38	39
	10/05/08	7 - 8	N	ND (2.1) *	6.1	86	ND (2.1) *	ND (1.1) *	ND (0.429)	38	12	19	4.4	ND (0.11) *	ND (2.1) *	28	ND (1.1)	ND (2.1)	ND (4.3) *	43	44
	10/05/08	9 - 10	N	ND (2) *	5.1	140	ND (2) *	ND (1)	ND (0.406)	71	13	20	3.4	ND (0.1) *	6.4	29	ND (1)	ND (2)	ND (4.1) *	44	42
	10/05/08	11 - 12	N	ND (2.1) *	7.1	92	ND (2.1) *	ND (1)	ND (0.42)	50	15	17	4.5	ND (0.1) *	ND (2.1) *	38	ND (1)	ND (2.1)	ND (4.2) *	54	42
	10/05/08	13 - 14	N	ND (2.1) *	11	100	ND (5.3) *	ND (1.1) *	ND (0.424)	62	14	30	3.8	ND (0.11) *	ND (5.3) *	45	ND (1.1)	ND (5.3) *	ND (11) *	53	51
SSB-2	06/30/97	1	N	---	---	---	---	---	ND (0.05)	48.7	---	7.4	---	---	---	7.9	---	---	---	---	27.3
	06/30/97	3	N	---	---	---	---	---	ND (0.05)	7.6	---	6.8	---	---	---	5.7	---	---	---	---	20.4
	06/30/97	6	N	---	---	---	---	---	ND (0.05)	10.1	---	9.4	---	---	---	7.9	---	---	---	---	27
	06/30/97	10	N	---	---	46.4	---	---	ND (0.05)	9.7	---	11	3.1	---	ND (0.2)	11.7	---	---	---	20.2	27.3
SSB-3	06/30/97	1	N	---	---	---	---	---	ND (0.05)	8.2	---	4.3	---	---	---	6	---	---	---	---	13.7
	06/30/97	3	N	---	---	---	---	---	ND (0.05)	13.2	---	9.5	---	---	---	10.4	---	---	---	---	21.4
	06/30/97	6	N	---	---	---	---	---	ND (0.05)	23.5	---	13.7	---	---	---	16.4	---	---	---	---	27.1
	06/30/97	10	N	---	---	70	---	---	ND (0.05)	7.1	---	13.4	2.3	---	ND (0.2)	7.7	---	---	---	15.5	19.2
SSB-4	06/30/97	1	N	---	---	---	---	---	ND (0.05)	10.1	---	3	---	---	---	3.9	---	---	---	---	11.9
	06/30/97	3	N	---	---	---	---	---	ND (0.05)	1,520	---	10.3	---	---	---	5.4	---	---	---	---	141
	06/30/97	6	N	---	---	---	---	---	ND (0.05)	297	---	12.4	---	---	---	6.9	---	---	---	---	130
	06/30/97	10	N	---	---	93.9	---	---	ND (0.05)	201	---	11.9	2.1	---	ND (0.2)	7.4	---	---	---	19.3	188
SSB-5	06/30/97	1	N	---	---	---	---	---	0.06	521	---	13.5	---	---	---	7.8	---	---	---	---	39.6
	06/30/97	3	N	---	---	---	---	---	ND (0.05)	1,440	---	16	---	---	---	4.2	---	---	---	---	128
	06/30/97	6	N	---	---	---	---	---	ND (0.05)	617	---	14.9	---	---	---	6.4	---	---	---	---	115
	06/30/97	10	N	---	---	89.6	---	---	ND (0.05)	31.6	---	7	1.75	---	ND (0.2)	7.7	---	---	---	18.7	107
WP-1	06/30/97	0	N	---	---	---	---	---	47.5	2,090	---	3.9	---	---	---	3.6	---	---	---	---	44.5
WP-2	09/18/97	0	N	---	---	---	---	---	ND (0.5)	25.9	---	22.8	---	---	---	9.9	---	---	---	---	80.1

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
WP-3	09/18/97	0.5	N	---	---	---	---	---	11.8	1,290	---	13.2	---	---	---	5.6	---	---	---	---	50.3
	09/18/97	2	N	---	---	---	---	---	0.41	273	---	18.6	---	---	---	18.3	---	---	---	---	50
WP-4	09/18/97	0	N	---	---	---	---	---	1.14	120	---	10.8	---	---	---	4	---	---	---	---	65.6
WP-5	09/18/97	0	N	---	---	---	---	---	3.51	511	---	16.8	---	---	---	13.2	---	---	---	---	50.4
	09/18/97	1	N	---	---	---	---	---	6.66	711	---	15.4	---	---	---	10.2	---	---	---	---	61.5
	09/18/97	2	N	---	---	---	---	---	8.97	421	---	15.8	---	---	---	12.9	---	---	---	---	51.9
	09/18/97	3	N	---	---	---	---	---	6.1	158	---	10.1	---	---	---	4.5	---	---	---	---	22.9
	09/18/97	4	N	---	---	---	---	---	10.2	113	---	24.4	---	---	---	20.6	---	---	---	---	41.9
WP-6	09/18/97	0	N	---	---	---	---	---	1.64	712	---	21.6	---	---	---	12.4	---	---	---	---	57.9
	09/18/97	1	N	---	---	---	---	---	9.46	1,030	---	18.2	---	---	---	5.8	---	---	---	---	46.5
	09/18/97	2	N	---	---	---	---	---	2.29	401	---	11.9	---	---	---	10.5	---	---	---	---	210
WP-Bank1	11/23/98	0	N	---	---	---	---	---	5.5	261	---	10.3	---	---	---	3.8	---	---	---	---	23.4
WP-Bank2	11/23/98	0	N	---	---	---	---	---	14	909	---	27.2	---	---	---	7.9	---	---	---	---	61.8
BANK-WP	11/13/98	Unknown	N	---	---	---	---	---	ND (0.51)	34.4	---	16.3	---	---	---	24.7	---	---	---	---	41.3
WP-Floor	11/23/98	Unknown	N	---	---	---	---	---	3.3	317	---	13.9	---	---	---	1.4 J	---	---	---	---	15.9 J
Bank - b	11/13/98	Unknown	N	---	---	---	---	---	0.7	20.1	---	15	---	---	---	18.2	---	---	---	---	38.2
T-1	11/13/98	Unknown	N	---	---	---	---	---	ND (0.53)	15.9	---	13.1	---	---	---	13.2	---	---	---	---	38.6
	11/13/98	Unknown	N	---	---	---	---	---	2.1	38.8	---	28	---	---	---	21.6	---	---	---	---	164
T-2	11/13/98	Unknown	N	---	---	---	---	---	ND (0.53)	21.2	---	12.4	---	---	---	16.2	---	---	---	---	44.7
	11/13/98	Unknown	N	---	---	---	---	---	0.6	44.4	---	14.2	---	---	---	13.1	---	---	---	---	43
T-3-B	11/13/98	0	N	---	---	---	---	---	3.1	619	---	19.6	---	---	---	7.9	---	---	---	---	673
P-1	11/13/98	Unknown	N	---	---	---	---	---	ND (0.53)	17.9	---	16.1	---	---	---	9.2	---	---	---	---	40.4
P-2Soil	11/13/98	- 3.5	N	---	---	---	---	---	ND (0.76)	33.2	---	6	---	---	---	5.6	---	---	---	---	6.4
	11/13/98	Unknown	N	---	---	---	---	---	ND (0.52)	15	---	9.7	---	---	---	8.1	---	---	---	---	36.1
Category 3																					
PB-1	06/24/88	0 - 3	N	---	---	---	---	---	ND (0.5)	45	---	---	---	---	---	---	---	---	---	---	---
PB-2	06/24/88	0 - 3	N	---	---	---	---	---	ND (0.5)	38	---	---	---	---	---	---	---	---	---	---	---
	06/24/88	0 - 3	FD	---	---	---	---	---	ND (0.5)	37	---	---	---	---	---	---	---	---	---	---	---
PB-3	06/24/88	0 - 3	N	---	---	---	---	---	7.1	270	---	---	---	---	---	---	---	---	---	---	---
PB-4	06/24/88	0 - 3	N	---	---	---	---	---	ND (0.5)	25	---	---	---	---	---	---	---	---	---	---	---

TABLE 3-1a

Sample Results: Metals
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-1b

Sample Results: Contract Laboratory Program Inorganics
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)									
			Interim Screening Level[1] :	**16,400**	**66,500**	**29,303**	**NE**	**12,100**	**402**	**NE**	**4,400**	**2,070**	**0.9**
			Residential Regional Screening Levels[2] :	**77,000**	**NE**	**55,000**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**	**23**
			Residential DTSC-SL[3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values[4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**NE**	**0.9**
			Background[5] :	**16,400**	**66,500**	**29,303**	**NE**	**12,100**	**402**	**NE**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Iron (2+)**	**Magnesium**	**Manganese**	**Manganese Extractable**	**Potassium**	**Sodium**	**Cyanide**
Category 1													
MW-09	07/01/97	10	N	---	---	11,400	ND (100)	---	190	81	---	---	---
	07/01/97	30	N	---	---	13,100	ND (100)	---	192	36.6	---	---	---
	07/01/97	50	N	---	---	9,580	ND (100)	---	139	22.8	---	---	---
	07/01/97	87	N	---	---	16,500	ND (100)	---	526	224	---	---	---
SWMU1-1	10/16/08	0 - 0.5	N	9,200	17,000	25,000	---	7,100	270	---	2,700	310	ND (1.03) *
SWMU1-3	10/06/08	0 - 0.5	N	8,100	16,000	21,000	---	6,400	250	---	2,500	ND (260)	ND (1.01) *
SWMU1-4	10/15/08	0 - 0.5	N	5,900	13,000	21,000	---	4,900	200	---	1,700	190	ND (1) *
SWMU1-9	10/14/08	0 - 0.5	N	9,400	19,000	20,000	---	7,600	260	---	2,800	270	ND (1.1) *
SWMU1-11	10/15/08	0 - 0.5	N	12,000	23,000	18,000	---	8,100	240	---	2,300	600	ND (1.06) *
SWMU1-13	10/14/08	0 - 0.5	N	7,900	15,000	21,000	---	6,500	270	---	2,500	220	ND (1.02) *
SWMU1-15	09/22/08	0 - 0.5	N	8,800	22,000	20,000 J	---	6,900 J	280 J	---	2,800 J	340	ND (1.03) *
SWMU1-17	09/21/08	0 - 0.5	N	12,000	22,000	23,000	---	9,700	340	---	4,900	580	ND (1.01) *
SWMU1-22	12/17/15	0 - 1	N	---	29,000	15,000	---	7,100	230	---	2,300	350	---
SWMU1-23	12/17/15	0 - 1	N	---	23,000	18,000	---	7,000	220	---	2,200	410	---
SWMU1-24	12/17/15	0 - 1	N	---	28,000	17,000	---	7,600	220	---	2,300	890	---
SWMU1-28	02/14/17	0 - 0.5	N	8,200	21,000	21,000	---	6,100	240	---	3,500	180	ND (0.204) J
SWMU1-29	02/16/17	0 - 0.5	N	6,700	14,000	24,000	---	5,200	220	---	2,400	150	ND (0.203) J
SWMU1-WP-1h	10/07/08	0 - 0.5	N	11,000	16,000	17,000	---	7,300	210	---	2,400	500	ND (1.04) *
SWMU1-WP-3a	10/14/08	0 - 0.5	N	8,700	15,000	18,000	---	6,600	270	---	2,800	290	ND (1.05) *
SWMU1-WP-5a	10/05/08	0 - 0.5	N	7,900	14,000	23,000 J	---	6,800	280	---	2,800 J	ND (280)	ND (1.01) *
SWMU1-WP-5h	10/07/08	0 - 0.5	N	8,500	21,000	17,000	---	6,300	220	---	2,300 J	310	ND (1.08) *
SWMU1-WP-6a	10/05/08	0 - 0.5	N	9,600	16,000	19,000	---	8,600	270	---	3,000	ND (370)	ND (1.01) *

TABLE 3-1b

Sample Results: Contract Laboratory Program Inorganics
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)									
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**NE**	**12,100**	**402**	**NE**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**NE**	**12,100**	**402**	**NE**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Iron (2+)**	**Magnesium**	**Manganese**	**Manganese Extractable**	**Potassium**	**Sodium**	**Cyanide**
SWMU1-WP-6h	10/06/08 ⊖	0 - 0.5	N	11,000	37,000	21,000	---	10,000	280	---	3,200	ND (690)	ND (1.03) *
SWMU1-WP-7	10/06/08	0 - 0.5	N	9,700	70,000	25,000	---	12,000	250	---	2,600	ND (1,000)	ND (1.07) *
SWMU1-WP-8	10/06/08	0 - 0.5	N	8,400	24,000	17,000	---	6,800	230	---	2,400	ND (320)	ND (1.01) *
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	8,400	17,000	24,000 J	---	8,000 J	280	---	2,900 J	ND (330)	ND (1.03) *
SSB-2	06/30/97	10	N	---	---	9,600	ND (100)	---	150	27.5	---	---	---
SSB-3	06/30/97	10	N	---	---	7,220	ND (100)	---	114	34.2	---	---	---
SSB-4	06/30/97	10	N	---	---	11,600	ND (100)	---	161	45.2	---	---	---
SSB-5	06/30/97	10	N	---	---	9,870	ND (100)	---	139	26.8	---	---	---
WP-Bank1	11/23/98	0	N	---	280,000	4,760	---	12,000	67.4	---	1,040	1,800	---
WP-Bank2	11/23/98	0	N	---	173,000	11,300	---	14,300	139	---	1,680	1,650	---
BANK-WP	11/13/98	Unknown	N	---	31,300 J	21,900 J	---	8,100 J	289 J	---	2,190 J	1,430 J	---
WP-Floor	11/23/98	Unknown	N	---	344,000 J	2,630 J	---	15,500 J	29.2 J	---	486 J	2,360	---
P-2Soil	11/13/98	- 3.5	N	---	255,000 J	6,790 J	---	14,700 J	112 J	---	1,520 J	1,540 J	---

TABLE 3-1b

Sample Results: Contract Laboratory Program Inorganics
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-1c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
			Residential Regional Screening Levels [2] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
Category 1																								
SWMU1-1	10/16/08	0 - 0.5	N	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND	ND	ND (6.9)
	10/16/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.5	ND	16.2	6
	10/16/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/16/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-2	10/15/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/15/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/15/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/15/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-3	10/06/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/06/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/06/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/06/08	19 - 20	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/06/08	29 - 30	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/06/08	39 - 40	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/06/08	49 - 50	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.8)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/06/08	59 - 60	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	69 - 70	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	79 - 80	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
	10/07/08	79 - 80	FD	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (4.8)	ND (5.7)	ND (5.7)	ND	ND	ND (6.6)
SWMU1-4	10/15/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/15/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/15/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.6)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.6)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	13 - 14	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.7)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-5	10/15/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	13 - 14	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.7)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	13 - 14	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	15 - 16	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/15/08	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)

TABLE 3-1c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
SWMU1-6	10/15/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/15/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/15/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/15/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-7	10/15/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.3	6.4	8.5	11	6.8	7.5	ND (5)	12	ND (5)	8.9	ND (5)	6.7	9.2	6.7	75.6	11
	10/15/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/15/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/15/08	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-8	10/15/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/15/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/15/08	9 - 10	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
SWMU1-9	10/14/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	2 - 3	N	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (6.2)	ND (26)	ND (26)	ND	ND	ND (30)
	10/14/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.8)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
SWMU1-10	10/14/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/14/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/14/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
SWMU1-11	10/15/08	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.2	5.4	10	ND (5.3)	7.4	8.3	ND (5.3)	14	ND (5.3)	ND (5.3)	ND (5.3)	5.3	12	5.3	64.3	10
	10/15/08	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	19	14	22	6.5	17	25	ND (5.3)	49	ND (5.3)	6.7	9.7	47	36	56.7	195.2	22
	10/15/08	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.7)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/15/08	9 - 10	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
SWMU1-12	10/14/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/14/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-13	10/14/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.3	ND (5.1)	7	ND (5.1)	6.3	5.7	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	ND	47.3	6.7
	10/14/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)

TABLE 3-1c
Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
SWMU1-14	10/14/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/14/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/14/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-15	09/22/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (5.1)	5.3	8.2	5.3	18.2	5.9
	09/22/08	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/22/08	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/22/08	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	29 - 30	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	39 - 40	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/22/08	49 - 50	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	09/22/08	59 - 60	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	59 - 60	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	69 - 70	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/22/08	79 - 80	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/23/08	89 - 90	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
SWMU1-16	09/21/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-17	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/21/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-28	02/14/17	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	26	21	38	14	12	20	ND (5)	36	ND (5)	12	ND (5)	7.4	32	7.4	211	31
SWMU1-29	02/16/17	0 - 0.5	N	---	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340) *	ND (340)	ND (340)	ND (340)	ND (340)	ND (340) *	ND (340)	ND (340)	ND (340)	ND (6.8)	ND (340)	ND (340)	ND	ND	ND (390) *
SWMU1-WP-1h	10/07/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/07/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

TABLE 3-1c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
			Residential Regional Screening Levels [2] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
SWMU1-WP-3a	10/14/08	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	5.7	6.1
	10/14/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.6)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/14/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	11 - 12	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/14/08	13 - 14	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
SWMU1-WP-3h	10/07/08	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/07/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/07/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-WP-5a	10/05/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	5 - 6	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	11 - 12	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	13 - 14	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-WP-5h	10/07/08	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/07/08 ⊖	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/07/08	5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-WP-6a	10/05/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	11 - 12	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	13 - 14	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-WP-6h	10/06/08 ⊖	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.7)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/06/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)

TABLE 3-1c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
SWMU1-WP-7	10/06/08	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	17	12	17	10	17	22	ND (5.4)	440	ND (5.4)	9.2	ND (5.4)	12	360	12	904.2	19
	10/06/08 ⊖	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	10/06/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-WP-8	10/06/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.4	8.9	9.2	9	10	10	ND (5.1)	16	ND (5.1)	7.7	ND (5.1)	ND (5.1)	16	ND	93.2	14
	10/06/08	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (3.8)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/06/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/06/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SWMU1-WP-9	09/21/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/21/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	11 - 12	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/21/08	13 - 14	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SWMU1-WP-10	10/05/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	15	15	19	11	20	19	ND (5.2)	24	ND (5.2)	10	ND (5.2)	5.9	22	5.9	155	22
	10/05/08 ⊖	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9	8	6	8.5	8.5	ND (5.2)	12	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11	ND	59.9	9.9
	10/05/08	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/05/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.4	6.1	ND (5.3)	9.4	ND (5.3)	ND (5.3)	16	ND (5.3)	8.5	16	29.4	6.2
SWMU1-WP-T3	10/05/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/05/08	5 - 6	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.9)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/05/08	7 - 8	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/05/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/05/08	9 - 10	FD	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND (5)	---	---	---	---	ND
	10/05/08	11 - 12	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/05/08	13 - 14	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-1d
Sample Results: Total Petroleum Hydrocarbons
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1]:	**230**	**11,000**
			Residential Regional Screening Levels [2]:	**NE**	**NE**
			Residential DTSC-SL [3]:	**NE**	**NE**
			RWQCB Environmental Screening Levels [4]:	**230**	**11,000**
			Ecological Comparison Values [5]:	**NE**	**NE**
			Background [6]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SWMU1-1	10/16/08	0 - 0.5	N	ND (10)	ND (10)
	10/16/08	2 - 3	N	ND (10)	10
	10/16/08	5 - 6	N	ND (10)	25.9
	10/16/08	9 - 10	N	ND (10)	ND (10)
SWMU1-2	10/15/08	0 - 0.5	N	12.4	13.1
	10/15/08	2 - 3	N	ND (10)	12.6
	10/15/08	5 - 6	N	ND (10)	15
	10/15/08	9 - 10	N	ND (10)	ND (10)
SWMU1-3	10/06/08	0 - 0.5	N	ND (10)	30.4
	10/06/08	2 - 3	N	ND (10)	ND (10)
	10/06/08	2 - 3	FD	ND (10)	ND (10)
	10/06/08	5 - 6	N	ND (10)	49.7
	10/06/08	9 - 10	N	ND (10)	14.9
	10/06/08	19 - 20	N	ND (10)	ND (10)
	10/06/08	29 - 30	N	ND (10)	ND (10)
	10/06/08	39 - 40	N	ND (10)	ND (10)
	10/06/08	49 - 50	N	ND (10)	ND (10)
	10/06/08	59 - 60	N	ND (10)	12.9
	10/07/08	69 - 70	N	ND (10)	ND (10)
	10/07/08	79 - 80	N	ND (10)	ND (10)
	10/07/08	79 - 80	FD	ND (10)	ND (10)
SWMU1-4	10/15/08	0 - 0.5	N	ND (10)	ND (10)
	10/15/08	2 - 3	N	ND (10)	17.6
	10/15/08	5 - 6	N	ND (10)	11.5
	10/15/08	7 - 8	N	ND (10)	ND (10)
	10/15/08	9 - 10	N	ND (10)	ND (10)
	10/15/08	13 - 14	N	ND (10)	ND (10)
SWMU1-5	10/15/08	9 - 10	N	ND (10)	ND (10)
	10/15/08	13 - 14	N	ND (10)	ND (10)
	10/15/08	13 - 14	FD	ND (10)	ND (10)
	10/15/08	15 - 16	N	ND (10)	ND (10)
	10/15/08	19 - 20	N	ND (10)	ND (10)
SWMU1-6	10/15/08	0 - 0.5	N	ND (10)	ND (10)
	10/15/08	2 - 3	N	ND (10)	ND (10)
	10/15/08	5 - 6	N	ND (10)	ND (10)
	10/15/08	9 - 10	N	ND (10)	ND (10)

TABLE 3-1d

Sample Results: Total Petroleum Hydrocarbons

SWMU 1 – Former Percolation Bed

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PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SWMU1-7	10/15/08	0 - 0.5	N	ND (10)	ND (10)
	10/15/08	2 - 3	N	ND (10)	13
	10/15/08	5 - 6	N	ND (10)	ND (10)
	10/15/08	9 - 10	N	ND (10)	ND (10)
	10/15/08	9 - 10	FD	ND (10)	ND (10)
SWMU1-8	10/15/08	0 - 0.5	N	ND (10)	11.7
	10/15/08	2 - 3	N	ND (10)	14.5
	10/15/08	5 - 6	N	ND (10)	19.4
	10/15/08	9 - 10	N	ND (10)	ND (10)
SWMU1-9	10/14/08	0 - 0.5	N	ND (10)	41.2 J
	10/14/08	2 - 3	N	ND (10)	41.9 J
	10/14/08	5 - 6	N	ND (10)	20.4 J
	10/14/08	9 - 10	N	ND (10)	11.8 J
SWMU1-10	10/14/08	0 - 0.5	N	10.1	60.8
	10/14/08	2 - 3	N	ND (10)	10.9
	10/14/08	5 - 6	N	ND (10)	11.9
	10/14/08	5 - 6	FD	ND (10)	16.1
	10/14/08	9 - 10	N	ND (10)	15.6
SWMU1-11	10/15/08	0 - 0.5	N	ND (10)	17.6
	10/15/08	2 - 3	N	ND (10)	15.7
	10/15/08	5 - 6	N	ND (10)	21.7
	10/15/08	9 - 10	N	ND (10)	ND (10)
SWMU1-12	10/14/08	0 - 0.5	N	ND (10)	ND (10)
	10/14/08	2 - 3	N	ND (10)	10.4
	10/14/08	5 - 6	N	ND (10)	ND (10)
	10/14/08	9 - 10	N	ND (10)	ND (10)
SWMU1-13	10/14/08	0 - 0.5	N	12.6	67.3
	10/14/08	2 - 3	N	ND (10)	ND (10)
	10/14/08	2 - 3	FD	ND (10)	ND (10)
	10/14/08	5 - 6	N	ND (10)	ND (10)
	10/14/08	9 - 10	N	ND (10)	ND (10)
SWMU1-14	10/14/08	0 - 0.5	N	ND (10)	58.4
	10/14/08	2 - 3	N	ND (10)	11.6
	10/14/08	5 - 6	N	ND (10)	ND (10)
	10/14/08	9 - 10	N	ND (10)	10.7

TABLE 3-1d
Sample Results: Total Petroleum Hydrocarbons
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SWMU1-15	09/22/08	0 - 0.5	N	ND (10)	23.7
	09/22/08	2 - 3	N	ND (10)	ND (10)
	09/22/08	5 - 6	N	ND (10)	22.5
	09/22/08	9 - 10	N	ND (10)	10.3
	09/22/08	9 - 10	FD	ND (10)	19.8
	09/22/08	19 - 20	N	ND (10)	ND (10)
	09/22/08	29 - 30	N	ND (10)	ND (10)
	09/22/08	39 - 40	N	ND (10)	11.6
	09/22/08	49 - 50	N	ND (10)	ND (10)
	09/22/08	59 - 60	N	ND (10)	ND (10)
	09/22/08	59 - 60	FD	ND (10)	ND (10)
	09/22/08	69 - 70	N	ND (10)	11.2
	09/22/08	79 - 80	N	ND (10)	ND (10)
	09/23/08	89 - 90	N	ND (10)	ND (10)
SWMU1-16	09/21/08	0 - 0.5	N	ND (10)	19.2 J
	09/21/08	2 - 3	N	ND (10)	ND (10)
	09/21/08	5 - 6	N	14.5 J	33.8 J
SWMU1-17	09/21/08	0 - 0.5	N	ND (10)	150 J
	09/21/08	2 - 3	N	ND (10)	ND (10)
	09/21/08	5 - 6	N	ND (10)	27.2 J
	09/21/08	9 - 10	N	ND (10)	ND (10)
	09/21/08	9 - 10	FD	ND (10)	ND (10)
SWMU1-WP-1h	10/07/08	0 - 0.5	N	ND (10)	ND (10)
	10/07/08	2 - 3	N	ND (10)	ND (10)
	10/07/08	5 - 6	N	ND (10)	ND (10)
	10/07/08	9 - 10	N	ND (10)	ND (10)
SWMU1-WP-3a	10/14/08	0 - 0.5	N	17.8	86 J
	10/14/08	2 - 3	N	ND (10)	14.9 J
	10/14/08	5 - 6	N	ND (10) J	18.5 J
	10/14/08	7 - 8	N	ND (10)	11.6 J
	10/14/08	9 - 10	N	ND (10)	13.3 J
	10/14/08	9 - 10	FD	ND (10)	12.5 J
	10/14/08	11 - 12	N	ND (10)	ND (10)
	10/14/08	13 - 14	N	ND (10)	ND (10)
SWMU1-WP-3h	10/07/08	0 - 0.5	N	ND (10)	ND (10)
	10/07/08	2 - 3	N	ND (10)	ND (10)
	10/07/08	5 - 6	N	ND (10)	ND (10)

TABLE 3-1d
Sample Results: Total Petroleum Hydrocarbons
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SWMU1-WP-5a	10/05/08	0 - 0.5	N	16.2	168
	10/05/08	2 - 3	N	ND (10)	16.2
	10/05/08	5 - 6	N	ND (10)	38.7
	10/05/08	5 - 6	FD	ND (10)	47.4
	10/05/08	7 - 8	N	ND (10)	ND (10)
	10/05/08	9 - 10	N	ND (10)	ND (10)
	10/05/08	11 - 12	N	ND (10)	ND (10)
	10/05/08	13 - 14	N	ND (10)	ND (10)
SWMU1-WP-5h	10/07/08	0 - 0.5	N	ND (10)	ND (10)
	10/07/08 ϴ	2 - 3	N	ND (10)	ND (10)
	10/07/08	5	N	ND (10)	ND (10)
SWMU1-WP-6a	10/05/08	0 - 0.5	N	ND (10)	ND (10)
	10/05/08	2 - 3	N	ND (10)	ND (10)
	10/05/08	2 - 3	FD	ND (10)	ND (10)
	10/05/08	5 - 6	N	ND (10)	ND (10)
	10/05/08	7 - 8	N	ND (10)	ND (10)
	10/05/08	9 - 10	N	ND (10)	ND (10)
	10/05/08	11 - 12	N	ND (10)	ND (10)
	10/05/08	13 - 14	N	ND (10)	ND (10)
SWMU1-WP-6h	10/06/08 ϴ	0 - 0.5	N	ND (10)	ND (10)
	10/06/08	2 - 3	N	ND (10)	ND (10)
	10/06/08	5 - 6	N	ND (10)	ND (10)
	10/06/08	5 - 6	FD	ND (10)	ND (10)
	10/06/08	9 - 10	N	ND (10)	ND (10)
SWMU1-WP-7	10/06/08	0 - 0.5	N	ND (10)	ND (10)
	10/06/08 ϴ	2 - 3	N	ND (10)	ND (10)
	10/06/08	5 - 6	N	ND (10)	ND (10)
	10/06/08	9 - 10	N	ND (10)	ND (10)
SWMU1-WP-8	10/06/08	0 - 0.5	N	ND (10)	ND (10)
	10/06/08	2 - 3	N	ND (10)	ND (10)
	10/06/08	5 - 6	N	ND (10)	ND (10)
	10/06/08	9 - 10	N	ND (10)	ND (10)

TABLE 3-1d

Sample Results: Total Petroleum Hydrocarbons

SWMU 1 – Former Percolation Bed

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SWMU1-WP-9	09/21/08	0 - 0.5	N	ND (10)	ND (10)
	09/21/08	2 - 3	N	ND (10)	ND (10)
	09/21/08	2 - 3	FD	ND (10)	ND (10)
	09/21/08	5 - 6	N	ND (10)	17.4 J
	09/21/08	7 - 8	N	ND (10)	ND (10)
	09/21/08	9 - 10	N	ND (10)	ND (10)
	09/21/08	11 - 12	N	ND (10)	ND (10)
	09/21/08	13 - 14	N	ND (10)	ND (10)
SWMU1-WP-10	10/05/08	0 - 0.5	N	ND (10)	ND (10)
	10/05/08 ϴ	2 - 3	N	ND (10)	ND (10)
	10/05/08	5 - 6	N	ND (10)	ND (10)
	10/05/08	9 - 10	N	ND (10)	ND (10)
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	ND (10)	ND (10)
	10/05/08	2 - 3	N	ND (10)	ND (10)
	10/05/08	5 - 6	N	ND (10)	ND (10)
	10/05/08	5 - 6	FD	ND (10)	ND (10)
	10/05/08	7 - 8	N	ND (10)	ND (10)
	10/05/08	9 - 10	N	ND (10)	ND (10)
	10/05/08	11 - 12	N	ND (10)	ND (10)
	10/05/08	13 - 14	N	ND (10)	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Nitrate**	**Ortho phosphate**	**pH**	**Phosphate**	**Sulfate**	**Sulfide**	**Total organic carbon**
Category 1															
MW-09	06/30/97	1	N	---	---	---	---	---	---	---	8.96	---	---	---	---
	06/30/97	3.5	N	---	---	---	---	---	---	---	9.66	---	---	---	---
	06/30/97	3.5	FD	---	---	---	---	---	---	---	10.08	---	---	---	---
	06/30/97	6	N	---	---	---	---	---	---	---	9.58	---	---	---	---
	07/01/97	10	N	---	---	---	---	124	---	305	9.5	---	14	ND (0.4)	300
	06/30/97	20	N	---	---	16.8	---	---	---	---	9.64	---	---	---	---
	07/01/97	30	N	---	---	---	---	118	---	276	8.79	---	30	ND (0.4)	310
	06/30/97	40	N	---	---	11.5	---	---	---	---	8.57	---	---	---	---
	07/01/97	50	N	---	---	---	---	121	---	311	8.65	---	13	ND (0.4)	ND (100)
	06/30/97	60	N	---	---	12.4	---	---	---	---	8.29	---	---	---	---
	06/30/97	70	N	---	---	---	---	---	---	---	8.74	---	---	---	---
	07/01/97	87	N	---	---	4.9	---	122	---	297	8.66	---	11	ND (0.4)	200
	07/01/97	87	FD	---	---	---	---	---	---	---	8.42	---	---	---	---
SWMU1-1	10/16/08	0 - 0.5	N	---	---	---	---	---	---	---	8.94	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	---	---	---	9.4	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	---	---	---	8.38	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	---	---	---	9.36	---	---	---	---
SWMU1-2	10/15/08	0 - 0.5	N	---	---	---	---	---	---	---	8.68	---	---	---	---
	10/15/08	2 - 3	N	---	---	---	---	---	---	---	9.01	---	---	---	---
	10/15/08	5 - 6	N	---	---	---	---	---	---	---	9.04	---	---	---	---
	10/15/08	9 - 10	N	---	---	---	---	---	---	---	8.41	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Cation Exchange Capacity	Chloride	Electric Conductance	Nitrate	Ortho phosphate	pH	Phosphate	Sulfate	Sulfide	Total organic carbon
SWMU1-3	10/06/08	0 - 0.5	N	---	---	---	---	---	---	---	8.37	---	---	---	---
	10/06/08	2 - 3	N	---	---	---	---	---	---	---	8.44	---	---	---	---
	10/06/08	2 - 3	FD	---	---	---	---	---	---	---	8.85	---	---	---	---
	10/06/08	5 - 6	N	---	---	---	---	---	---	---	8.36	---	---	---	---
	10/06/08	9 - 10	N	---	---	---	---	---	---	---	9.2	---	---	---	---
	10/06/08	19 - 20	N	---	---	---	---	---	---	---	9.45	---	---	---	---
	10/06/08	29 - 30	N	---	---	---	---	---	---	---	9.5	---	---	---	---
	10/06/08	39 - 40	N	---	---	---	---	---	---	---	9.36	---	---	---	---
	10/06/08	49 - 50	N	---	---	---	---	---	---	---	9.35	---	---	---	---
	10/06/08	59 - 60	N	---	---	---	---	---	---	---	9.3	---	---	---	---
	10/07/08	69 - 70	N	---	---	---	---	---	---	---	9.01	---	---	---	---
	10/07/08	79 - 80	N	---	---	---	---	---	---	---	8.04	---	---	---	---
	10/07/08	79 - 80	FD	---	---	---	---	---	---	---	8.58	---	---	---	---
SWMU1-4	10/15/08	0 - 0.5	N	---	---	---	---	---	---	---	8.99	---	---	---	---
	10/15/08	2 - 3	N	---	---	---	---	---	---	---	8.93	---	---	---	---
	10/15/08	5 - 6	N	---	---	---	---	---	---	---	9.08	---	---	---	---
	10/15/08	7 - 8	N	---	---	---	---	---	---	---	9.19	---	---	---	---
	10/15/08	9 - 10	N	---	---	---	---	---	---	---	9.25	---	---	---	---
	10/15/08	13 - 14	N	---	---	---	---	---	---	---	9.6	---	---	---	---

TABLE 3-1e

Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Cation Exchange Capacity	Chloride	Electric Conductance	Nitrate	Ortho phosphate	pH	Phosphate	Sulfate	Sulfide	Total organic carbon
SWMU1-5	10/15/08	9 - 10	N	---	---	---	---	---	---	---	9.04	---	---	---	---
	10/15/08	13 - 14	N	---	---	---	---	---	---	---	9.75	---	---	---	---
	10/15/08	13 - 14	FD	---	---	---	---	---	---	---	9.51	---	---	---	---
	10/15/08	15 - 16	N	---	---	---	---	---	---	---	9.52	---	---	---	---
	10/15/08	19 - 20	N	---	---	---	---	---	---	---	9.59	---	---	---	---
SWMU1-6	10/15/08	0 - 0.5	N	---	---	---	---	---	---	---	8.93	---	---	---	---
	10/15/08	2 - 3	N	---	---	---	---	---	---	---	9.09	---	---	---	---
	10/15/08	5 - 6	N	---	---	---	---	---	---	---	9.26	---	---	---	---
	10/15/08	9 - 10	N	---	---	---	---	---	---	---	9.22	---	---	---	---
SWMU1-7	10/15/08	0 - 0.5	N	---	---	---	---	---	---	---	8.6	---	---	---	---
	10/15/08	2 - 3	N	---	---	---	---	---	---	---	9	---	---	---	---
	10/15/08	5 - 6	N	---	---	---	---	---	---	---	8.78	---	---	---	---
	10/15/08	9 - 10	N	---	---	---	---	---	---	---	8.95	---	---	---	---
	10/15/08	9 - 10	FD	---	---	---	---	---	---	---	9.12	---	---	---	---
SWMU1-8	10/15/08	0 - 0.5	N	---	---	---	---	---	---	---	8.99	---	---	---	---
	10/15/08	2 - 3	N	---	---	---	---	---	---	---	8.87	---	---	---	---
	10/15/08	5 - 6	N	---	---	---	---	---	---	---	8.82	---	---	---	---
	10/15/08	9 - 10	N	---	---	---	---	---	---	---	10.2	---	---	---	---
SWMU1-9	10/14/08	0 - 0.5	N	---	---	---	---	---	---	---	8.75	---	---	---	---
	10/14/08	2 - 3	N	---	---	---	---	---	---	---	9.89	---	---	---	---
	10/14/08	5 - 6	N	---	---	---	---	---	---	---	9.72	---	---	---	---
	10/14/08	9 - 10	N	---	---	---	---	---	---	---	9.59	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Cation Exchange Capacity	Chloride	Electric Conductance	Nitrate	Ortho phosphate	pH	Phosphate	Sulfate	Sulfide	Total organic carbon
SWMU1-10	10/14/08	0 - 0.5	N	---	---	---	---	---	---	---	8.69	---	---	---	---
	10/14/08	2 - 3	N	---	---	---	---	---	---	---	9.07	---	---	---	---
	10/14/08	5 - 6	N	---	---	---	---	---	---	---	10	---	---	---	---
	10/14/08	5 - 6	FD	---	---	---	---	---	---	---	9.85	---	---	---	---
	10/14/08	9 - 10	N	---	---	---	---	---	---	---	9.67	---	---	---	---
SWMU1-11	10/15/08	0 - 0.5	N	---	---	---	---	---	---	---	8.4	---	---	---	---
	10/15/08	2 - 3	N	---	---	---	---	---	---	---	8.69	---	---	---	---
	10/15/08	5 - 6	N	---	---	---	---	---	---	---	9.63	---	---	---	---
	10/15/08	9 - 10	N	---	---	---	---	---	---	---	9.66	---	---	---	---
SWMU1-12	10/14/08	0 - 0.5	N	---	---	---	---	---	---	---	9.04	---	---	---	---
	10/14/08	2 - 3	N	---	---	---	---	---	---	---	8.98	---	---	---	---
	10/14/08	5 - 6	N	---	---	---	---	---	---	---	9.53	---	---	---	---
	10/14/08	9 - 10	N	---	---	---	---	---	---	---	9.64	---	---	---	---
SWMU1-13	10/14/08	0 - 0.5	N	---	---	---	---	---	---	---	8.72	---	---	---	---
	10/14/08	2 - 3	N	---	---	---	---	---	---	---	8.86	---	---	---	---
	10/14/08	2 - 3	FD	---	---	---	---	---	---	---	8.9	---	---	---	---
	10/14/08	5 - 6	N	---	---	---	---	---	---	---	9.82	---	---	---	---
	10/14/08	9 - 10	N	---	---	---	---	---	---	---	9.76	---	---	---	---
SWMU1-14	10/14/08	0 - 0.5	N	---	---	---	---	---	---	---	8.92	---	---	---	---
	10/14/08	2 - 3	N	---	---	---	---	---	---	---	9.07	---	---	---	---
	10/14/08	5 - 6	N	---	---	---	---	---	---	---	9.97	---	---	---	---
	10/14/08	9 - 10	N	---	---	---	---	---	---	---	9.52	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Cation Exchange Capacity	Chloride	Electric Conductance	Nitrate	Ortho phosphate	pH	Phosphate	Sulfate	Sulfide	Total organic carbon
SWMU1-15	09/22/08	0 - 0.5	N	---	---	---	---	---	---	---	8.99	---	---	---	---
	09/22/08	2 - 3	N	---	---	---	---	---	---	---	9.95	---	---	---	---
	09/22/08	5 - 6	N	---	---	---	---	---	---	---	9.84	---	---	---	---
	09/22/08	9 - 10	N	---	---	---	---	---	---	---	9.98	---	---	---	---
	09/22/08	9 - 10	FD	---	---	---	---	---	---	---	9.95	---	---	---	---
	09/22/08	19 - 20	N	---	---	---	---	---	---	---	9.82	---	---	---	---
	09/22/08	29 - 30	N	---	---	---	---	---	---	---	9.51	---	---	---	---
	09/22/08	39 - 40	N	---	---	---	---	---	---	---	9.39	---	---	---	---
	09/22/08	49 - 50	N	---	---	---	---	---	---	---	9.19	---	---	---	---
	09/22/08	59 - 60	N	---	---	---	---	---	---	---	9.22	---	---	---	---
	09/22/08	59 - 60	FD	---	---	---	---	---	---	---	9.07	---	---	---	---
	09/22/08	69 - 70	N	---	---	---	---	---	---	---	8.82	---	---	---	---
	09/22/08	79 - 80	N	---	---	---	---	---	---	---	8.7	---	---	---	---
	09/23/08	89 - 90	N	---	---	---	---	---	---	---	9.57	---	---	---	---
SWMU1-16	09/21/08	0 - 0.5	N	---	---	---	---	---	---	---	8.87	---	---	---	---
	09/21/08	2 - 3	N	---	---	---	---	---	---	---	9.23	---	---	---	---
	09/21/08	5 - 6	N	---	---	---	---	---	---	---	9.14	---	---	---	---
SWMU1-17	09/21/08	0 - 0.5	N	---	---	---	---	---	---	---	8.88	---	---	---	---
	09/21/08	2 - 3	N	---	---	---	---	---	---	---	9.15	---	---	---	---
	09/21/08	5 - 6	N	---	---	---	---	---	---	---	9.71	---	---	---	---
	09/21/08	9 - 10	N	---	---	---	---	---	---	---	9.78	---	---	---	---
	09/21/08	9 - 10	FD	---	---	---	---	---	---	---	9.64	---	---	---	---

TABLE 3-1e

Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Nitrate**	**Ortho phosphate**	**pH**	**Phosphate**	**Sulfate**	**Sulfide**	**Total organic carbon**
SWMU1-WP-1h	10/07/08	0 - 0.5	N	---	---	---	---	---	---	---	8.96	---	---	---	---
	10/07/08	2 - 3	N	---	---	---	---	---	---	---	9.37	---	---	---	---
	10/07/08	5 - 6	N	---	---	---	---	---	---	---	9.28	---	---	---	---
	10/07/08	9 - 10	N	---	---	---	---	---	---	---	9.22	---	---	---	---
SWMU1-WP-3a	10/14/08	0 - 0.5	N	---	---	---	---	---	---	---	8.68	---	---	---	---
	10/14/08	2 - 3	N	---	---	---	---	---	---	---	9.8	---	---	---	---
	10/14/08	5 - 6	N	---	---	---	---	---	---	---	10	---	---	---	---
	10/14/08	7 - 8	N	---	---	---	---	---	---	---	9.59	---	---	---	---
	10/14/08	9 - 10	N	---	---	---	---	---	---	---	9.65	---	---	---	---
	10/14/08	9 - 10	FD	---	---	---	---	---	---	---	9.55	---	---	---	---
	10/14/08	11 - 12	N	---	---	---	---	---	---	---	9.64	---	---	---	---
	10/14/08	13 - 14	N	---	---	---	---	---	---	---	9.6	---	---	---	---
SWMU1-WP-3h	10/07/08	0 - 0.5	N	---	---	---	---	---	---	---	8.17	---	---	---	---
	10/07/08	2 - 3	N	---	---	---	---	---	---	---	9.44	---	---	---	---
	10/07/08	5 - 6	N	---	---	---	---	---	---	---	9.53	---	---	---	---
SWMU1-WP-5a	10/05/08	0 - 0.5	N	---	---	---	---	---	---	---	9.2	---	---	---	---
	10/05/08	2 - 3	N	---	---	---	---	---	---	---	9.32	---	---	---	---
	10/05/08	5 - 6	N	---	---	---	---	---	---	---	9.92	---	---	---	---
	10/05/08	5 - 6	FD	---	---	---	---	---	---	---	10.2	---	---	---	---
	10/05/08	7 - 8	N	---	---	---	---	---	---	---	9.64	---	---	---	---
	10/05/08	9 - 10	N	---	---	---	---	---	---	---	9.47	---	---	---	---
	10/05/08	11 - 12	N	---	---	---	---	---	---	---	9.67	---	---	---	---
	10/05/08	13 - 14	N	---	---	---	---	---	---	---	9.71	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Cation Exchange Capacity	Chloride	Electric Conductance	Nitrate	Ortho phosphate	pH	Phosphate	Sulfate	Sulfide	Total organic carbon
SWMU1-WP-5h	10/07/08	0 - 0.5	N	---	---	---	---	---	---	---	8.46	---	---	---	---
	10/07/08 ⊖	2 - 3	N	---	---	---	---	---	---	---	9.71	---	---	---	---
	10/07/08	5	N	---	---	---	---	---	---	---	9.55	---	---	---	---
SWMU1-WP-6a	10/05/08	0 - 0.5	N	---	---	---	---	---	---	---	9.1	---	---	---	---
	10/05/08	2 - 3	N	---	---	---	---	---	---	---	9.28	---	---	---	---
	10/05/08	2 - 3	FD	---	---	---	---	---	---	---	9.16	---	---	---	---
	10/05/08	5 - 6	N	---	---	---	---	---	---	---	9.52	---	---	---	---
	10/05/08	7 - 8	N	---	---	---	---	---	---	---	9.86	---	---	---	---
	10/05/08	9 - 10	N	---	---	---	---	---	---	---	9.57	---	---	---	---
	10/05/08	11 - 12	N	---	---	---	---	---	---	---	9.54	---	---	---	---
	10/05/08	13 - 14	N	---	---	---	---	---	---	---	9.54	---	---	---	---
SWMU1-WP-6h	10/06/08 ⊖	0 - 0.5	N	---	---	---	---	---	---	---	9.03	---	---	---	---
	10/06/08	2 - 3	N	---	---	---	---	---	---	---	9.09	---	---	---	---
	10/06/08	5 - 6	N	---	---	---	---	---	---	---	9.55	---	---	---	---
	10/06/08	5 - 6	FD	---	---	---	---	---	---	---	9.66	---	---	---	---
	10/06/08	9 - 10	N	---	---	---	---	---	---	---	9.63	---	---	---	---
SWMU1-WP-7	10/06/08	0 - 0.5	N	---	---	---	---	---	---	---	9.36	---	---	---	---
	10/06/08 ⊖	2 - 3	N	---	---	---	---	---	---	---	9.39	---	---	---	---
	10/06/08	5 - 6	N	---	---	---	---	---	---	---	9.42	---	---	---	---
	10/06/08	9 - 10	N	---	---	---	---	---	---	---	9.87	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Residential Regional Screening Levels [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Nitrate**	**Ortho phosphate**	**pH**	**Phosphate**	**Sulfate**	**Sulfide**	**Total organic carbon**
SWMU1-WP-8	10/06/08	0 - 0.5	N	---	---	---	---	---	---	---	8.98	---	---	---	---
	10/06/08	2 - 3	N	---	---	---	---	---	---	---	9.5	---	---	---	---
	10/06/08	5 - 6	N	---	---	---	---	---	---	---	9.1	---	---	---	---
	10/06/08	9 - 10	N	---	---	---	---	---	---	---	8.96	---	---	---	---
SWMU1-WP-9	09/21/08	0 - 0.5	N	---	---	---	---	---	---	---	9.02	---	---	---	---
	09/21/08	2 - 3	N	---	---	---	---	---	---	---	9.58	---	---	---	---
	09/21/08	2 - 3	FD	---	---	---	---	---	---	---	8.84	---	---	---	---
	09/21/08	5 - 6	N	---	---	---	---	---	---	---	9.63	---	---	---	---
	09/21/08	7 - 8	N	---	---	---	---	---	---	---	9.57	---	---	---	---
	09/21/08	9 - 10	N	---	---	---	---	---	---	---	9.72	---	---	---	---
	09/21/08	11 - 12	N	---	---	---	---	---	---	---	9.77	---	---	---	---
	09/21/08	13 - 14	N	---	---	---	---	---	---	---	9.67	---	---	---	---
SWMU1-WP-10	10/05/08	0 - 0.5	N	---	---	---	---	---	---	---	9.1	---	---	---	---
	10/05/08 ⊖	2 - 3	N	---	---	---	---	---	---	---	9.21	---	---	---	---
	10/05/08	5 - 6	N	---	---	---	---	---	---	---	10.2	---	---	---	---
	10/05/08	9 - 10	N	---	---	---	---	---	---	---	9.81	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Cation Exchange Capacity	Chloride	Electric Conductance	Nitrate	Ortho phosphate	pH	Phosphate	Sulfate	Sulfide	Total organic carbon
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	---	---	---	---	---	---	---	9.16	---	---	---	---
	10/05/08	2 - 3	N	---	---	---	---	---	---	---	9.19	---	---	---	---
	10/05/08	5 - 6	N	---	---	---	---	---	---	---	10	---	---	---	---
	10/05/08	5 - 6	FD	---	---	---	---	---	---	---	10	---	---	---	---
	10/05/08	7 - 8	N	---	---	---	---	---	---	---	9.75	---	---	---	---
	10/05/08	9 - 10	N	---	---	---	---	---	---	---	9.79	---	---	---	---
	10/05/08	11 - 12	N	---	---	---	---	---	---	---	9.67	---	---	---	---
	10/05/08	13 - 14	N	---	---	---	---	---	---	---	9.82	---	---	---	---
SSB-2	06/30/97	1	N	---	---	---	---	---	---	---	8.66	---	---	---	---
	06/30/97	3	N	---	---	---	---	---	---	---	9.07	---	---	---	---
	06/30/97	6	N	---	---	---	---	---	---	---	9.37	---	---	---	---
	06/30/97	10	N	---	---	---	---	103	---	313	10.49	---	10	ND (0.4)	490
SSB-3	06/30/97	1	N	---	---	---	---	---	---	---	8.9	---	---	---	---
	06/30/97	3	N	---	---	---	---	---	---	---	8.35	---	---	---	---
	06/30/97	6	N	---	---	---	---	---	---	---	9.7	---	---	---	---
	06/30/97	10	N	---	---	---	---	116	---	306	9.04	---	11	ND (0.4)	250
SSB-4	06/30/97	1	N	---	---	---	---	---	---	---	8.86	---	---	---	---
	06/30/97	3	N	---	---	---	---	---	---	---	8.24	---	---	---	---
	06/30/97	6	N	---	---	---	---	---	---	---	8.77	---	---	---	---
	06/30/97	10	N	---	---	---	---	120	---	265	9.42	---	13	ND (0.4)	110

TABLE 3-1e

Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Nitrate**	**Ortho phosphate**	**pH**	**Phosphate**	**Sulfate**	**Sulfide**	**Total organic carbon**
SSB-5	06/30/97	1	N	---	---	---	---	---	---	---	8.63	---	---	---	---
	06/30/97	3	N	---	---	---	---	---	---	---	8.6	---	---	---	---
	06/30/97	6	N	---	---	---	---	---	---	---	8.92	---	---	---	---
	06/30/97	10	N	---	---	---	---	115	---	261	9.52	---	16.5	ND (0.4)	210
WP-1	06/30/97	0	N	---	---	---	---	---	---	---	9.08	---	---	---	---
WP-2	09/18/97	0	N	---	---	---	---	---	---	---	9.03	---	---	---	---
WP-3	09/18/97	0.5	N	---	---	---	---	---	---	---	9.12	---	---	---	---
	09/18/97	2	N	---	---	---	---	---	---	---	8.6	---	---	---	---
WP-4	09/18/97	0	N	---	---	---	---	---	---	---	8.99	---	---	---	---
WP-5	09/18/97	0	N	---	---	---	---	---	---	---	9.01	---	---	---	---
	09/18/97	1	N	---	---	---	---	---	---	---	9.15	---	---	---	---
	09/18/97	2	N	---	---	---	---	---	---	---	8.56	---	---	---	---
	09/18/97	3	N	---	---	---	---	---	---	---	9.09	---	---	---	---
	09/18/97	4	N	---	---	---	---	---	---	---	9.1	---	---	---	---
WP-6	09/18/97	0	N	---	---	---	---	---	---	---	8.52	---	---	---	---
	09/18/97	1	N	---	---	---	---	---	---	---	8.95	---	---	---	---
	09/18/97	2	N	---	---	---	---	---	---	---	8.56	---	---	---	---
WP-Bank1	11/23/98	0	N	456	22	---	46	---	8	---	8.25	161	448	---	---
WP-Bank2	11/23/98	0	N	271	68	---	227	---	54	---	8.93	358	1,010	---	---
BANK-WP	11/13/98	Unknown	N	51	34	---	51	---	10	---	8.34	381	3,700	---	---
WP-Floor	11/23/98	Unknown	N	533	57	---	175	---	26	---	8.84	56 J	425	---	---
Bank - b	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.45	---	---	---	---

TABLE 3-1e

Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				General Chemistry											
				(mg/kg)	(mg/kg)	(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Nitrate**	**Ortho phosphate**	**pH**	**Phosphate**	**Sulfate**	**Sulfide**	**Total organic carbon**
T-1	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.86	---	---	---	---
	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.91	---	---	---	---
T-2	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.67	---	---	---	---
	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.52	---	---	---	---
T-3-B	11/13/98	0	N	---	---	---	---	---	---	---	8.67	---	---	---	---
P-1	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.68	---	---	---	---
P-2Soil	11/13/98	- 3.5	N	639	200	---	34	---	6 J	---	9.01	8.8	53	---	---
	11/13/98	Unknown	N	---	---	---	---	---	---	---	8.89	---	---	---	---

TABLE 3-1e
Sample Results: General Chemistry Parameters
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
µS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-1f
Sample Results: Pesticides
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
SWMU1-1	10/16/08	0 - 0.5	N	ND (2.4) *	ND (2.4) *	ND (2.4) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.4)	ND (1.2)	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.4)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (6)	ND (60) J
SWMU1-3	10/06/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
SWMU1-4	10/15/08	0 - 0.5	N	ND (2)	ND (2) J	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2) J	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2) J	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
SWMU1-9	10/14/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
SWMU1-11	10/15/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
SWMU1-13	10/14/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-15	09/22/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-17	09/21/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
SWMU1-28	02/14/17	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
SWMU1-29	02/16/17	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-WP-1h	10/07/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
SWMU1-WP-3a	10/14/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
SWMU1-WP-5a	10/05/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-WP-5h	10/07/08	0 - 0.5	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
SWMU1-WP-6a	10/05/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-WP-6h	10/06/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-WP-7	10/06/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
SWMU1-WP-8	10/06/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J

TABLE 3-1f

Sample Results: Pesticides
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-1g

Sample Results: Polychlorinated Biphenyls
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
SWMU1-1	10/16/08	0 - 0.5	N	ND (20)	ND (40)	ND (20)	ND (20)	ND (20)	35	ND (20)	ND (20)	ND (20)	35
SWMU1-3	10/06/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	18	ND (17)	ND (17)	ND (17)	18
	10/06/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (8.5)
SWMU1-4	10/15/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
SWMU1-9	10/14/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
SWMU1-11	10/15/08	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	40	ND (17)	ND (17)	ND (17)	40
SWMU1-13	10/14/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	22	ND (17)	ND (17)	ND (17)	22
SWMU1-15	09/22/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	96	ND (17)	ND (17)	ND (17)	96
	09/22/08	2 - 3	N	ND (17) J	ND (35) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (8.5)
SWMU1-17	09/21/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
SWMU1-18	01/07/16	0 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (9)
	01/07/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (9)
SWMU1-19	01/09/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	01/09/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
SWMU1-22	12/17/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	150	ND (17)	---	---	150
SWMU1-23	12/17/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	25	ND (17)	---	---	25
SWMU1-24	12/17/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	57	ND (17)	---	---	57
SWMU1-25	01/26/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	46 J	ND (17)	---	---	46
	01/26/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (9)
	01/26/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (9)
	01/26/16	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (9)
SWMU1-28	02/14/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
SWMU1-WP-1h	10/07/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
SWMU1-WP-3a	10/14/08	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)

TABLE 3-1g

Sample Results: Polychlorinated Biphenyls
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
SWMU1-WP-5a	10/05/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
SWMU1-WP-5h	10/07/08	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	25	ND (18)	ND (18)	ND (18)	25
	10/07/08 ϴ	2 - 3	N	ND (18) J	ND (35) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (9)
SWMU1-WP-6a	10/05/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	41	ND (17)	ND (17)	ND (17)	41
	10/05/08	2 - 3	N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (8.5)
SWMU1-WP-6h	10/06/08 ϴ	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	19
	10/06/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (8.5)
SWMU1-WP-7	10/06/08	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	200	ND (18)	ND (18)	ND (18)	200
	10/06/08 ϴ	2 - 3	N	ND (18) J	ND (37) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (9)
SWMU1-WP-8	10/06/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	41	ND (17)	ND (17)	ND (17)	41
	10/06/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (8.5)
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.

TABLE 3-1g

Sample Results: Polychlorinated Biphenyls
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-1h

Sample Results: Dioxins and Furans

SWMU 1 – Former Percolation Bed

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
Category 1																							
SWMU1-18	01/07/16	0 - 1	N	3,300	310	33	13	ND (0.53)	91	26	27	ND (0.61)	ND (2.4)	ND (0.37)	ND (1,500)	2.7 J	ND (0.44)	ND (0.13)	47,000	980	98	140	140
	01/07/16	2 - 3	N	4.7 J	ND (0.2)	ND (0.049)	ND (0.092)	ND (0.093)	ND (0.091)	ND (0.086)	ND (0.086)	ND (0.11)	ND (0.085)	ND (0.14)	ND (3.3)	ND (0.15)	ND (0.062)	ND (0.24)	49	0.97 J	0.47	0.37	0.37
	01/07/16	5 - 6	N	3.5 J	ND (0.13)	ND (0.16)	ND (0.09)	ND (0.12)	ND (0.089)	ND (0.11)	ND (0.084)	ND (0.5)	ND (0.041)	ND (0.048)	ND (0.57)	ND (0.052)	ND (0.079)	ND (0.24)	13 J	0.39 J	0.29	0.2	0.2
	01/07/16	9 - 10	N	3.5 J	ND (0.2)	ND (0.25)	ND (0.073)	ND (0.31)	ND (0.079)	ND (0.29)	ND (0.075)	ND (0.36)	ND (0.063)	ND (0.044)	ND (0.87)	ND (0.047)	ND (0.075)	ND (0.14)	23 J	ND (0.12)	0.27	0.23	0.23
SWMU1-19	01/09/16	0 - 1	N	80	4.5 J	ND (0.23)	ND (0.82)	ND (0.35)	3.3 J	ND (0.33)	ND (1.5)	ND (0.41)	ND (0.41)	ND (0.27)	ND (41)	ND (0.29)	ND (0.1)	ND (0.31)	450	11 J	3	3.9	3.9
	01/09/16	2 - 3	N	14,000	2,200	ND (41)	130	320	770	ND (24)	350	ND (30)	63	ND (2.7)	ND (12,000)	36	3.1 J	ND (0.91)	240,000	6,500	850	1,100	1,100
	01/09/16	5 - 6	N	1,100	79	ND (3.7)	4.3 J	ND (2.1)	31	ND (1.9)	10 J	ND (2.4)	ND (1.5)	ND (0.8)	ND (360)	ND (0.86)	ND (0.13)	ND (0.58)	16,000	230	25	41	41
	01/09/16	9 - 10	N	3,300	170	25	17	ND (15)	120	ND (14)	45	ND (18)	7.8 J	3 J	ND (2,600)	17	ND (0.97)	ND (0.59)	43,000	300	170	210	210
	01/09/16	14 - 15	N	1,100 J	100 J	9.1 J	ND (6.4) J	ND (6.2) J	40 J	ND (9.1) J	12 J	ND (7.1) J	3 J	ND (1.9) J	ND (700) J	5.6 J	ND (0.48) J	0.9 J	15,000 J	120 J	51	63	63
	01/09/16	19 - 20	N	25 J	ND (2.4) J	ND (2.8) J	ND (0.11) J	ND (0.11) J	ND (0.12) J	ND (0.24) J	ND (0.27) J	ND (0.13) J	ND (0.079) J	ND (0.087) J	ND (29) J	ND (0.13) J	ND (0.07) J	ND (0.046) J	340 J	1.7 J	1.7	2	2
SWMU1-20	01/13/16	1 - 1.5	N	170	10 J	ND (0.9)	ND (1.1)	ND (0.44)	7 J	ND (0.6)	ND (2.6)	ND (0.51)	ND (0.87)	ND (0.31)	ND (33)	ND (0.33)	ND (0.44)	ND (0.44)	1,100	25	3.4	5.5	5.5
	01/13/16	2 - 3	N	63	3.1 J	ND (0.5)	ND (1.7)	ND (0.62)	3.7 J	ND (0.81)	3.9 J	ND (0.19)	ND (1.5)	ND (0.33)	ND (20)	ND (0.36)	ND (0.18)	ND (0.15)	670	9.3 J	2.8	3.7	3.7
	01/13/16	5 - 6	N	2,200	220	16	23	ND (16)	100	ND (15)	69	ND (19)	20	8 J	ND (690)	ND (3.5)	1.2 J	ND (2.6)	24,000	380	78	110	110
	01/13/16	9 - 10	N	13,000	1,500	150	75	350	730	59	170	36	31	ND (2.5)	ND (11,000)	75	4.6 J	ND (0.5)	160,000	5,700	780	950	950
	01/13/16	14 - 15	N	1,900	160	ND (7.6)	11 J	ND (140)	67	ND (130)	21	ND (160)	ND (2.5)	ND (0.8)	ND (1,300)	12 J	ND (0.46)	ND (0.39)	46,000	200	110	140	140
	01/13/16	19 - 20	N	4.8 J	ND (0.16)	ND (0.19)	ND (0.079)	ND (0.21)	ND (0.068)	ND (0.18)	ND (0.069)	ND (0.24)	ND (0.047)	ND (0.069)	ND (2.7)	ND (0.069)	ND (0.034)	ND (0.066)	ND (71)	ND (0.57)	0.29	0.29	0.29
SWMU1-21	01/26/16	0 - 1	N	10,000	1,100	49 J	ND (12)	28	130 J	ND (9.3)	ND (12)	ND (12)	ND (2.6)	ND (7.9)	ND (220)	7.9 J	0.69 J	ND (1.3)	140,000	13,000	65	190	190
	01/26/16	2 - 3	N	19,000	ND (320)	ND (410)	160	89	1,000	150	350	ND (38)	92	ND (61)	ND (6,500)	ND (66)	3.5 J	ND (6.8)	200,000	10,000	580	870	870
	01/26/16	5 - 6	N	1,600	21	ND (10)	27	ND (1.9)	30	ND (1.8)	8.4 J	ND (2.2)	ND (0.67)	ND (5.2)	ND (260)	ND (5.6)	ND (0.28)	ND (0.26)	12,000	44	23	41	41
	01/26/16	9 - 10	N	130	ND (0.95)	ND (0.39)	ND (0.64)	ND (0.21)	ND (2.6)	ND (0.19)	ND (1.2)	ND (0.24)	ND (0.082)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.062)	ND (0.11)	500	ND (1.3)	0.57	1.8	1.8
	01/26/16	14 - 15	N	31	ND (0.2)	ND (0.23)	ND (0.18)	ND (0.17)	ND (0.15)	ND (0.15)	ND (0.16)	ND (0.2)	ND (0.077)	ND (0.091)	ND (3.7)	ND (0.21)	ND (0.05)	ND (0.084)	110	1.1 J	0.48	0.68	0.68
	01/26/16	19 - 20	N	12 J	ND (0.087)	ND (0.34)	ND (0.11)	ND (0.074)	ND (0.47)	ND (0.15)	ND (0.092)	ND (0.084)	ND (0.13)	ND (0.066)	ND (1.6)	ND (0.077)	ND (0.058)	ND (0.066)	110	ND (1.3)	0.3	0.39	0.39
SWMU1-22	12/17/15	0 - 1	N	240 J	17 J	ND (1.1) J	ND (1.9) J	ND (2.7) J	6.1 J	ND (2.3) J	ND (2.8) J	ND (3.2) J	ND (0.36) J	ND (0.99) J	ND (24) J	ND (0.64) J	ND (0.26) J	ND (1.5) J	2,100 J	31 J	3.9	6.2	6.2
SWMU1-23	12/17/15	0 - 1	N	480 J	39 J	2.6 J	3 J	3.9 J	13 J	2.7 J	5.8 J	ND (1.1) J	2.2 J	1.5 J	ND (71) J	ND (1.1) J	ND (0.38) J	ND (1.1) J	5,200 J	94 J	10	16	16
SWMU1-24	12/17/15	0 - 1	N	47,000 J	5,500 J	ND (71) J	ND (540) J	150 J	1,600 J	260 J	ND (470) J	ND (38) J	150 J	ND (80) J	ND (4,000) J	ND (81) J	18 J	7.4 J	360,000 J	5,000 J	650	1,300	1,300
SWMU1-25	01/26/16	0 - 1	N	140,000	ND (1,100)	ND (1,400)	1,900	ND (400)	14,000	1,600	2,900	ND (470)	910	ND (92)	ND (140,000)	1,600	67	89	540,000	160,000	11,000	12,000	12,000
	01/26/16	2 - 3	N	340	13	ND (1.8)	1.9 J	ND (0.89)	7.8 J	ND (0.82)	ND (2.5)	ND (1)	ND (0.21)	ND (0.35)	ND (71)	ND (0.38)	ND (0.16)	ND (0.22)	4,400	35	5.4	9.9	9.9
	01/26/16	5 - 6	N	210	ND (5.6)	ND (1.3)	2.5 J	ND (0.85)	6.1 J	ND (0.79)	1.9 J	ND (1)	ND (0.17)	ND (0.53)	ND (37)	ND (0.57)	ND (0.58)	0.65 J	2,200	13 J	4.2	6.4	6.4
	01/26/16	9 - 10	N	59	5.4 J	ND (0.42)	ND (0.39)	ND (0.85)	1.7 J	ND (1.1)	ND (0.49)	ND (0.4)	ND (0.19)	ND (0.16)	ND (24)	ND (0.18)	ND (0.097)	ND (0.14)	670	12 J	1.9	2.6	2.6

TABLE 3-1h

Sample Results: Dioxins and Furans

SWMU 1 – Former Percolation Bed

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
			Interim Screening Level [1] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
			Residential Regional Screening Levels [2] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
SWMU1-26	01/08/17	0 - 0.5	N	450 J	37	ND (9.4)	ND (0.39)	ND (2)	12 J	ND (1.8)	2.9 J	ND (2.3)	ND (0.25)	ND (0.98)	ND (93)	ND (0.79)	ND (0.14)	ND (0.62)	5,100 J	75	7.7	13	13
	01/08/17	0 - 0.5	FD	1,200 J	70	5.7 J	2.1 J	ND (3.4)	21	ND (3.1)	4 J	ND (4)	ND (0.39)	ND (0.38)	ND (140)	ND (1)	ND (0.11)	ND (0.71)	8,000 J	150	12	26	26
	01/08/17	2 - 3	N	46	ND (3.4)	ND (0.6)	ND (0.25)	ND (0.13)	ND (0.25)	ND (0.12)	ND (0.61)	ND (0.15)	ND (0.16)	ND (0.16)	ND (10)	ND (0.51)	ND (0.27)	ND (1.2)	390	8.7 J	1.7	1.5	1.5
	01/08/17	5 - 6	N	410	61	8.3 J	ND (1.4)	ND (1.4)	14	5.6 J	ND (2.6)	ND (1.7)	ND (0.68)	ND (3.2)	ND (420)	ND (3.3)	ND (0.12)	0.77 J	7,100	120	27	31	31
	01/08/17	9 - 10	N	11 J	ND (2.8)	ND (2)	ND (0.57)	0.66 J	ND (0.48)	ND (0.49)	0.99 J	ND (1.2)	0.33 J	0.47 J	ND (1.7)	ND (0.17)	ND (0.11)	0.74 J	80	ND (4.2)	1.7	1	1
	01/08/17	14 - 15	N	1.9 J	ND (0.64)	ND (0.45)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.096)	ND (0.14)	ND (0.19)	ND (0.1)	ND (0.11)	ND (0.5)	ND (0.11)	ND (0.084)	ND (0.31)	20 J	ND (0.26)	0.37	0.22	0.22
	01/08/17	19 - 20	N	ND (0.19)	ND (0.37)	ND (0.12)	ND (0.13)	ND (0.086)	ND (0.13)	ND (0.078)	ND (0.15)	ND (0.5)	ND (0.12)	ND (0.12)	ND (0.68)	ND (0.12)	ND (0.12)	ND (0.45)	11 J	ND (1)	0.49	0.26	0.26
SWMU1-27	01/07/17	0 - 0.5	N	210	22	ND (4.4)	ND (1.1)	ND (0.42)	ND (0.37)	ND (2.3)	3 J	ND (1.2)	ND (0.53)	ND (2.1)	ND (78)	ND (0.4)	ND (0.13)	ND (0.28)	2,100	56	5.9	7.9	7.9
	01/07/17	2 - 3	N	34	ND (2.7)	ND (0.23)	ND (0.42)	ND (0.42)	1.1 J	ND (0.1)	0.74 J	ND (0.13)	ND (0.13)	ND (0.18)	ND (5.9)	ND (0.18)	ND (0.12)	ND (0.6)	250	ND (4.6)	1	1.1	1.1
	01/07/17	5 - 6	N	150	17	ND (2.6)	ND (0.63)	ND (1.8)	4.2 J	ND (1.6)	2 J	ND (2.1)	ND (0.92)	ND (0.53)	ND (44)	ND (0.51)	ND (0.11)	ND (0.59)	1,600	35	4.3	5.9	5.9
	01/07/17	9 - 10	N	ND (1.8)	ND (0.36)	ND (0.064)	ND (0.081)	ND (0.071)	ND (0.08)	ND (0.065)	ND (0.26)	ND (0.17)	ND (0.11)	ND (0.093)	ND (0.69)	ND (0.098)	ND (0.11)	0.27 J	ND (22)	ND (0.78)	0.5	0.24	0.24
	01/07/17	14 - 15	N	ND (0.28)	ND (0.14)	ND (0.62)	0.21 J	ND (0.24)	ND (0.27)	ND (0.057)	ND (0.078)	ND (0.42)	ND (0.08)	ND (0.072)	ND (0.2)	ND (0.075)	ND (0.17)	ND (0.69)	ND (9.9)	ND (1.3)	0.58	0.26	0.26
	01/07/17	19 - 20	N	ND (1.1)	ND (0.45)	ND (0.37)	ND (0.048)	ND (0.093)	ND (0.047)	ND (0.085)	ND (0.075)	ND (0.11)	ND (0.092)	ND (0.033)	ND (0.096)	ND (0.15)	ND (0.09)	ND (0.29)	ND (12)	ND (0.76)	ND (0.34)	ND (0.17)	ND (0.17)
SWMU1-28	02/14/17	0 - 0.5	N	150	14	ND (1.9)	ND (0.55)	ND (0.2)	ND (2.6)	ND (1.1)	ND (1.7)	ND (0.3)	ND (0.27)	ND (0.2)	ND (25)	ND (0.21)	ND (0.073)	ND (0.22)	1,000	57	2.2	3.8	3.8
	02/14/17	0 - 0.5	FD	120	15	ND (1.9)	ND (0.43)	ND (0.56)	3.5 J	ND (0.46)	ND (0.42)	ND (0.51)	ND (0.13)	ND (0.41)	ND (26)	ND (0.43)	ND (0.071)	ND (0.1)	1,000	59	2.2	3.6	3.6
	02/14/17	2 - 3	N	33	6.4 J	ND (0.7)	ND (0.27)	ND (0.35)	1.3 J	ND (0.18)	0.87 J	ND (0.22)	ND (0.32)	ND (0.3)	ND (8.7)	ND (0.56)	ND (0.061)	ND (0.17)	230	ND (11)	1.3	1.5	1.5
SWMU1-29	02/16/17	0 - 0.5	N	240 J	21	ND (1.7)	ND (1.2)	1.6 J	8.1 J	ND (0.92)	2.8 J	ND (0.34)	ND (0.62)	ND (0.93)	ND (49)	ND (1.1)	ND (0.15)	ND (0.57)	2,400	56 J	5	7.8	7.8
	02/16/17	2 - 3	N	4,700	250	25	61	20	240	18	ND (110)	4.6 J	39	7.4 J	ND (3,400)	7.1 J	ND (0.16)	2 J	48,000 J	320	250	320	320
	02/16/17	5 - 6	N	400	29	2.7 J	3.2 J	ND (2.9)	14	ND (1.6)	7 J	ND (0.27)	ND (1.8)	ND (0.68)	ND (190)	1.3 J	ND (0.11)	0.59 J	4,700	48	15	19	19
	02/16/17	9 - 10	N	380	23	2.3 J	ND (1.6)	2.4 J	9.2 J	ND (0.64)	ND (3.8)	ND (0.4)	ND (0.94)	ND (0.16)	ND (130)	ND (0.45)	ND (0.13)	ND (0.39)	6,200	43	9.3	15	15

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Interim Screening Level are circled.

--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established

TABLE 3-1h

Sample Results: Dioxins and Furans
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-1i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	12	46 / 47 (98%)	11,000	19	(5.98)	15	(16)	NA	(NE)	NA	(NA)	NA	(NE)	15	(16)
TEQ Human	ng/kg	12	46 / 47 (98%)	12,000	25	(5.58)	NA	(NE)	12	(50)	NA	(NA)	6	(220)	12	(50)
TEQ Mammals	ng/kg	12	46 / 47 (98%)	12,000	25	(5.58)	25	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	25	(5.58)
Metals																
Antimony	mg/kg	39	4 / 194 (2.1%)	18	NA	(NE)	4	(0.285)	0	(31)	NA	(NA)	0	(470)	4	(0.285)
Arsenic	mg/kg	39	184 / 194 (95%)	14	3	(11)	3	(11.4)	3	(0.11) *	NA	(NA)	3	(0.36) *	3	(11)
Barium	mg/kg	44	200 / 200 (100%)	1,900	2	(410)	2	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	2	(410)
Beryllium	mg/kg	39	0 / 194 (0%)	ND (5.3) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	39	6 / 194 (3.1%)	1.5	5	(1.1)	5	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	5	(1.1)
Chromium, Hexavalent	mg/kg	60	69 / 246 (28%)	47.5	50	(0.83)	0	(139.6)	50	(0.3)	NA	(NA)	22	(6.3)	50	(0.83)
Chromium, Hexavalent-SPLP	mg/L	6	6 / 6 (100%)	0.024	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Chromium, total	mg/kg	60	246 / 246 (100%)	3,200	91	(39.8)	91	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	91	(39.8)
Chromium-SPLP	mg/L	6	3 / 6 (50%)	0.156	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Cobalt	mg/kg	38	191 / 191 (100%)	19	21	(12.7)	15	(13)	0	(23)	NA	(NA)	0	(350)	21	(12.7)
Copper	mg/kg	60	245 / 246 (100%)	61	56	(16.8)	33	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	56	(16.8)
Lead	mg/kg	44	197 / 200 (99%)	13	2	(8.39)	2	(0.0166) *	0	(80)	NA	(NA)	0	(320)	2	(8.39)
Mercury	mg/kg	39	13 / 193 (6.7%)	0.35	NA	(NE)	13	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	13	(0.0125)
Molybdenum	mg/kg	44	34 / 202 (17%)	20	23	(1.37)	12	(2.25)	0	(390)	NA	(NA)	0	(5,800)	23	(1.37)
Nickel	mg/kg	60	247 / 247 (100%)	51	24	(27.3)	24	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	24	(27.3)
Selenium	mg/kg	39	4 / 194 (2.1%)	2.5	2	(1.47)	2	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	2	(1.47)
Silver	mg/kg	39	0 / 194 (0%)	ND (5.3) ‡	NA	(NE)	0	(5.15)	0	(390)	NA	(NA)	0	(1,500)	0	(5.15)
Thallium	mg/kg	39	0 / 194 (0%)	ND (11) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	44	200 / 200 (100%)	57	10	(52.2)	10	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	10	(52.2)
Zinc	mg/kg	60	246 / 246 (100%)	673	51	(58)	51	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	51	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	18	18 / 18 (100%)	12,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	26	26 / 26 (100%)	344,000	5	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	5	(66,500)
Iron	mg/kg	31	34 / 34 (100%)	25,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	26	26 / 26 (100%)	15,500	3	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	3	(12,100)
Manganese	mg/kg	31	34 / 34 (100%)	526	1	(402)	1	(220)	0	(1,800)	NA	(NA)	0	(6,900)	1	(402)
Manganese Extractable	mg/kg	5	8 / 8 (100%)	224	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Potassium	mg/kg	26	26 / 26 (100%)	4,900	1	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	1	(4,400)
Sodium	mg/kg	26	20 / 26 (77%)	2,360	1	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	1	(2,070)
Cyanide	mg/kg	18	0 / 18 (0%)	ND (1.1) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Polycyclic Aromatic Hydrocarbons																
Benzo (a) anthracene	µg/kg	31	8 / 143 (5.6%)	26	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	31	7 / 143 (4.9%)	21	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Benzo (b) fluoranthene	µg/kg	31	8 / 143 (5.6%)	38	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (ghi) perylene	µg/kg	31	6 / 143 (4.2%)	14	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	31	9 / 143 (6.3%)	20	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	31	9 / 143 (6.3%)	25	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)

TABLE 3-1i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
Fluoranthene	µg/kg	31	12 / 143 (8.4%)	440	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	31	6 / 143 (4.2%)	12	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Naphthalene	µg/kg	31	2 / 143 (1.4%)	16	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	31	7 / 143 (4.9%)	47	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	31	11 / 143 (7.7%)	360	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	31	143 / 143 (100%)	56.7	1	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	31	143 / 143 (100%)	904.2	1	(267.4)	0	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	0	(1,160)
B(a)P Equivalent	µg/kg	31	12 / 144 (8.3%)	31	0	(55)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Polychlorinated biphenyls																
Aroclor 1254	µg/kg	24	13 / 33 (39%)	200	NA	(NE)	NA	(NE)	0	(240)	NA	(NA)	0	(970)	0	(240)
Total PCBs	µg/kg	24	13 / 33 (39%)	200	NA	(NE)	0	(204)	0	(230)	NA	(NA)	0	(940)	0	(204)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	29	6 / 141 (4.3%)	17.8	NA	(NE)	NA	(NE)	0	(230)	0	(230)	0	(1,100)	0	(230)
TPH as motor oil	mg/kg	29	49 / 141 (35%)	168	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-1i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 1 – Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-2a

Sample Results: Metals in Sediment
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**NE**	**9.79**	**410**	**0.672**	**0.99**	**0.83**	**43.4**	**12.7**	**31.6**	**35.8**	**0.18**	**1.37**	**22.7**	**1.47**	**NE**	**NE**	**52.2**	**121**
Soil Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Consensus-based Threshold effect concentration [3]:				**NE**	**9.79**	**NE**	**NE**	**0.99**	**NE**	**43.4**	**NE**	**31.6**	**35.8**	**0.18**	**NE**	**22.7**	**NE**	**NE**	**NE**	**NE**	**121**
Consensus-based Probable effect concentration [3]:				**NE**	**33**	**NE**	**NE**	**4.98**	**NE**	**111**	**NE**	**149**	**128**	**1.06**	**NE**	**48.6**	**NE**	**NE**	**NE**	**NE**	**459**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC1-BCW6	08/22/08 ǂ	0 - 0.5	N	ND (5.7) *	13	320	ND (2.8) *	ND (2.8) *	2.63	71	7.7	22	23	ND (0.14) *	ND (2.8) *	18	ND (2.8) *	ND (2.8)	ND (5.7) *	37	81
	08/22/08 ǂ	2 - 3	N	ND (5.8) *	9.3	230	ND (2.9) *	ND (2.9) *	ND (0.608)	21	6.3	14	8.7	ND (0.14) *	ND (2.9) *	13	ND (2.9) *	ND (2.9)	ND (5.8) *	31	50
DrSed-1	02/18/03 Δ	1	N	ND (1.56) *	1.57	92.6	0.105 J	ND (0.39)	ND (4.2) *	2.27	1.14	1.26	4.12	ND (0.0333) *	ND (0.78)	1.94	ND (0.78)	0.176 J	ND (0.78) *	6.33	9.27
DrSed-2	02/18/03 Δ	1	N	ND (1.58) *	1.27	65.9	0.0963 J	ND (0.394)	ND (4.2) *	1.78	1.07	1.07	3.44	ND (0.0327) *	ND (0.788)	1.88	ND (0.788)	0.219 J	ND (0.788) *	4.46	7.14
DrSed-3	02/19/03 Δ	1	N	ND (1.81) *	1.67	45.8	0.101 J	ND (0.453)	ND (4.2) *	1.75	1.02	1.38	3.69	ND (0.0351) *	ND (0.906)	1.7	ND (0.906)	0.203 J	ND (0.906) *	4.65	6.74
SED-1	02/18/03 Δ	2	N	---	---	---	---	---	ND (5.5) *	3.33	---	2.5	---	---	---	3.21	---	---	---	---	11.8
SED-10	02/17/03 Δ	2	N	ND (2.79) *	2.72	100	0.219 J	0.0789 J	ND (5.7) *	6.79	2.07	5.17	5.15	ND (0.0445) *	ND (1.4) *	4.59	0.891 J	0.343 J	ND (1.4) *	10.9	18
SED-11	02/17/03 Δ	2	N	---	---	---	---	---	ND (5.6) *	15.7	---	7.88	---	---	---	6.87	---	---	---	---	26
SED-12	02/17/03 Δ	2	N	ND (2.15) *	3.58	170	0.506 J	0.158 J	ND (4.9) *	21.4	8.1	15.2	6.69	ND (0.0404) *	0.463 J	13.3	0.886 J	ND (1.08)	ND (1.08) *	36	50.9
SED-2	02/18/03 Δ	2	N	---	---	---	---	---	ND (5) *	4.61	---	3.39	---	---	---	3.79	---	---	---	---	13.4
SED-27	02/19/03 Δ	2	N	ND (2.86) *	3.68	151	0.338 J	0.198 J	ND (6) *	6.87	2.7	6.84	9.5	0.0573	0.821 J	5.56	ND (1.43)	0.373 J	ND (1.43) *	14.8	28.5
SED-28	02/19/03 Δ	2	N	ND (2.19) *	1.58	69.3	0.156 J	0.0772 J	ND (5.4) *	4.62	1.47	2.8	3.7	ND (0.0348) *	ND (1.09)	3.04	0.668 J	0.341 J	ND (1.09) *	7.64	10.3
SED-29	02/19/03 Δ	2	N	ND (2.11) *	1.54	170	0.17 J	0.0666 J	ND (5.3) *	4.48	1.65	2.93	4.15	ND (0.0339) *	ND (1.06)	3.12	ND (1.06)	ND (1.06)	ND (1.06) *	11	12
SED-3	02/18/03 Δ	2	N	---	---	---	---	---	ND (5) *	3.64	---	3.12	---	---	---	5.5	---	---	---	---	11.3
SED-4	02/18/03 Δ	2	N	---	---	---	---	---	ND (5.8) *	5.48	---	4.46	---	---	---	3.99	---	---	---	---	15.6
SED-5	02/17/03 Δ	2	N	---	---	---	---	---	ND (5) *	2.41	---	1.95	---	---	---	3.4	---	---	---	---	7.32
SED-6	02/17/03 Δ	2	N	---	---	---	---	---	ND (4.9) *	5.1	---	2.13	---	---	---	6.42	---	---	---	---	9.83
SED-7	02/17/03 Δ	2	N	---	---	---	---	---	ND (6) *	22.1	---	11.7	---	---	---	12.1	---	---	---	---	37.3
SED-8	02/17/03 Δ	2	N	ND (2.38) *	1.54	64.3	0.215 J	ND (0.595)	ND (4.8) *	8.27	2.53	5.71	6.22	ND (0.0394) *	ND (1.19)	7.15	0.702 J	0.28 J	ND (1.19) *	12.1	20.3
SED-9	02/17/03 Δ	2	N	ND (4.2) *	ND (1.05)	135	0.614	0.0822 J	ND (4.9) *	19.1	7.44	25.6	6.33	ND (0.0311) *	0.451 J	12.7	0.675 J	ND (1.05)	0.573 J	39	39.1
SS-1	06/29/97 ǂ	0.5	N	---	---	---	---	---	ND (0.05)	38.2	---	16.5	---	---	---	17.9	---	---	---	---	55
	06/29/97 ǂ	1.5	N	---	---	---	---	---	ND (0.05)	25.3	---	13.6	---	---	---	12.5	---	---	---	---	43.4

TABLE 3-2a

Sample Results: Metals in Sediment
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than interim screening level are circled.

ǂ	This location is in an area where soil is transitioning into sediment.
Δ	sediment sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established

1 Interim screening level is equal to the to the lower value between the threshold effect concentration and probable effect concentration. If neither is available, then the soil background value, if available, is used.

2 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

3 MacDonald, D.D., C.G. Ingersoll, and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environm. Contam. Toxicol. 39:20-31.

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC1-BCW1	09/20/08	0 - 0.5	N	ND (2) *	4.3	160	ND (1) *	ND (1)	ND (0.401)	23	6.4	11	7.5	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	26	44
	09/20/08	2 - 3	N	ND (2) *	8.4	160	ND (1) *	ND (1)	ND (0.404)	25	9.4	15	2	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2) *	40	28
AOC1-BCW2	10/04/08	0 - 0.5	N	ND (2) *	3.4	96	ND (1) *	ND (1)	ND (0.403)	21	6	7.6	3.7	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	23	40
	10/04/08	2 - 3	N	ND (2) *	3.1	110	ND (1) *	ND (1)	ND (0.407)	34	7.1	9.2	18	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	39
	10/04/08	5 - 6	N	ND (2) *	3.1	100	ND (1) *	ND (1)	ND (0.404)	35	7.1	8.8	4.4	ND (0.1) *	1.5	12	ND (1)	ND (1)	ND (2) *	28	41
	10/04/08	9 - 10	N	ND (2.1) *	3.8	120	ND (1.1) *	ND (1.1) *	ND (0.426)	20	8.7	8.1	3.8	ND (0.1) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	38	39
AOC1-BCW3	10/04/08	0 - 0.5	N	ND (2) *	4.4	140	ND (1) *	ND (1)	0.416	25	6.4	11	7.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	27	51
	10/04/08	2 - 3	N	ND (2) *	3.2	99	ND (1) *	ND (1)	ND (0.404)	25	7.5	9.8	4	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	30	38
	10/04/08	5 - 6	N	ND (2.1) *	4.2	170	ND (2.1) *	ND (1)	ND (0.415)	23	11	9.6	2.2	ND (0.1) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.1) *	36	43
	10/04/08	9 - 10	N	ND (2.1) *	4	120	ND (1.1) *	ND (1.1) *	ND (0.421)	21	9	8.5	2.2	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	36	38
	10/04/08	9 - 10	FD	ND (2.1) *	4.2	130	ND (1.1) *	ND (1.1) *	ND (0.424)	22	9.3	8.8	2.3	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	37	41
AOC1-BCW4	10/04/08	0 - 0.5	N	ND (2) *	4.4	180	ND (1) *	ND (1)	1.3	36	8.3	13	9.4	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	33	61
	10/04/08	2 - 3	N	ND (2) *	2.9	76	ND (1) *	ND (1)	ND (0.407)	24	5.8	8.3	3.6	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2) *	23	33
	10/04/08	5 - 6	N	ND (2.1) *	4	60	ND (1) *	ND (1)	ND (0.416)	23	9.4	8.4	2.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	37	45
	10/04/08	9 - 10	N	ND (2.1) *	5.1	81	ND (2.1) *	ND (1.1) *	ND (0.426)	22	9.7	7.6	2.3	ND (0.11) *	ND (2.1) *	15	ND (1.1)	ND (2.1)	ND (4.3) *	35	42
AOC1-BCW5	10/04/08	0 - 0.5	N	ND (2) *	3.7	160	ND (1) *	ND (1)	0.445	35	8.7	12	6	ND (0.099) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	34	46
	10/04/08	2 - 3	N	ND (2) *	3.5	130	ND (1) *	ND (1)	ND (0.407)	31	7.4	9.6	7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	42
	10/04/08	5 - 6	N	ND (2.1) *	3.9	120	ND (1) *	ND (1)	ND (0.42)	26	9.9	8.4	2.7	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	41	44
	10/04/08	9 - 10	N	ND (2.1) *	4.7	110	ND (2.1) *	ND (1)	ND (0.425)	22	9.2	ND (7.4)	3.2	ND (0.11) *	ND (2.1) *	15	ND (1)	ND (2.1)	ND (4.2) *	35	40
	10/04/08	9 - 10	FD	ND (2.1) *	4.7	110	ND (2.1) *	ND (1.1) *	ND (0.427)	24	9	ND (7.3)	3	ND (0.11) *	ND (2.1) *	15	ND (1.1)	ND (2.1)	ND (4.2) *	34	40
AOC1-BCW6	08/22/08 ‡	0 - 0.5	N	ND (5.7) *	13	320	ND (2.8) *	ND (2.8) *	2.63	71	7.7	22	23	ND (0.14) *	ND (2.8) *	18	ND (2.8) *	ND (2.8)	ND (5.7) *	37	81
	08/22/08 ‡	2 - 3	N	ND (5.8) *	9.3	230	ND (2.9) *	ND (2.9) *	ND (0.608)	21	6.3	14	8.7	ND (0.14) *	ND (2.9) *	13	ND (2.9) *	ND (2.9)	ND (5.8) *	31	50
AOC1-T1a	10/16/08	0 - 0.5	N	ND (2) *	6.5	100	ND (2) *	ND (1)	ND (0.406)	19	7.3	11	4.9	ND (0.1) *	ND (2) *	14	ND (1)	ND (2)	ND (4) *	30	38
	10/16/08	2 - 3	N	ND (2) *	3.2	120	ND (1) *	ND (1)	ND (0.404)	27	7.7	8.6	3.8	ND (0.1) *	2	13	ND (1)	ND (1)	ND (2) *	29	37
	10/16/08	5 - 6	N	ND (2) *	3.5	110	ND (1) *	ND (1)	ND (0.405)	26	7.2	9.5	3.4	ND (0.1) *	2	12	ND (1)	ND (1)	ND (2) *	29	34
	10/16/08	9 - 10	N	ND (2) *	2.4	88	ND (1) *	ND (1)	ND (0.404)	14	7.3	7.5	1.4	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2) *	29	32
AOC1-T1b	10/16/08	0 - 0.5	N	ND (2) *	2.9	88	ND (1) *	ND (1)	ND (0.405)	43 J	8.4	9	3.1	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	36	31
	10/16/08	0 - 0.5	FD	ND (2) *	2.8	86	ND (1) *	ND (1)	ND (0.405)	33 J	8.2	10	3.2	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	35	32
	10/16/08	2 - 3	N	ND (2.1) *	2.9	210	ND (1) *	ND (1)	ND (1.94) *	98	7.5	12	3.9	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	33	67
	10/16/08	5 - 6	N	ND (2) *	3	99	ND (1) *	ND (1)	0.402	28	7.2	9	3.2	ND (0.1) *	1.7	12	ND (1)	ND (1)	ND (2) *	31	31
	10/16/08	9 - 10	N	ND (2) *	2.6	120	ND (1) *	ND (1)	ND (0.402)	42	8	11	2.6	ND (0.1) *	5	14	ND (1)	ND (1)	ND (2) *	30	32
AOC1-T1c	10/16/08	0 - 0.5	N	ND (2) *	3.2	120	ND (1) *	ND (1)	0.601	44	7.4	13	7.5	ND (0.1) *	1.9	11	ND (1)	ND (1)	ND (2) *	33	53
	10/16/08	2 - 3	N	ND (2.1) *	2.6	150	ND (1) *	ND (1)	4.77 J	140	8	26	20 J	ND (0.1) *	2.5	11 J	ND (1)	ND (1)	ND (2.1) *	33	82 J
	10/16/08	2 - 3	FD	ND (2.1) *	3	170	ND (1) *	ND (1)	3.58 J	150	8.2	29	32 J	ND (0.1) *	2.2	14 J	ND (1)	ND (1)	ND (2.1) *	29	110 J
	10/16/08	5 - 6	N	ND (2) *	3.1	97	ND (1) *	ND (1)	0.446	46	7.2	15	5	ND (0.1) *	3	12	ND (1)	ND (1)	ND (2) *	27	44
	10/16/08	9 - 10	N	ND (2.1) *	2.8	120	ND (1) *	ND (1)	ND (0.418)	20	8.6	11	1.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	33	38

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC1-T2a	10/05/08	0 - 0.5	N	ND (2) *	4	110	ND (1) *	ND (1)	ND (0.403)	26	7.1	10	4.8	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	38
	10/16/08	2 - 3	N	ND (2) *	6	120	ND (2) *	ND (1)	ND (0.407)	28	8.7	10	4	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4) *	32	42
	10/16/08	5 - 6	N	ND (2) *	2.7	110	ND (1) *	ND (1)	ND (0.405)	19	8.1	8.3	2.4	ND (0.1) *	1.1	11	ND (1)	ND (1)	ND (2) *	28	35
	10/16/08	9 - 10	N	ND (2.1) *	2.9	110	ND (1) *	ND (1)	ND (0.416)	15	7.4	7.1	2.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	27	36
AOC1-T2b	10/16/08	0 - 0.5	N	ND (2) J*	3.6	120	ND (1) *	ND (1)	ND (0.408)	26	7.3	9.3	3.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	28	39
	10/16/08	2 - 3	N	ND (2.1) *	3	93	ND (1) *	ND (1)	ND (0.414)	26	6.9	10	3	ND (0.1) *	2.4	11	ND (1)	ND (1)	ND (2.1) *	23	33
	10/16/08	5 - 6	N	ND (2) *	3	89	ND (1) *	ND (1)	ND (0.407)	53	6.7	8.7	2.4	ND (0.1) *	5.5	12	ND (1)	ND (1)	ND (2) *	25	32
	10/16/08	9 - 10	N	ND (2.1) *	2.4	99	ND (1) *	ND (1)	ND (0.415)	18	8.4	8.5	1.8	ND (0.1) *	1.3	12	ND (1)	ND (1)	ND (2.1) *	27	33
	10/16/08	9 - 10	FD	ND (2.1) *	2.3	110	ND (1) *	ND (1)	ND (0.413)	18	8.2	9.6	1.6	ND (0.1) *	1.2	13	ND (1)	ND (1)	ND (2.1) *	29	35
AOC1-T2c	10/08/08	0 - 0.5	N	ND (2) J*	3.7	88	ND (1) *	ND (1)	1.26	60	6.3	10	5.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	26	44
	10/08/08	2 - 3	N	ND (2) *	3.1	130	ND (1) *	ND (1)	ND (0.416)	42	8.4	11	3.3	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	34	33
	10/08/08	5 - 6	N	ND (2) *	2.3	81	ND (1) *	ND (1)	ND (0.412)	22	7.2	9.1	1.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	31	28
	10/08/08	9 - 10	N	ND (2.1) *	3.7	40	ND (1) *	ND (1)	ND (0.419)	24	9.3	9.7	2.6	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	35	40
AOC1-T2d	10/07/08	0 - 0.5	N	ND (2) *	3	100	ND (1) *	ND (1)	ND (0.408)	46	8.2	10	2.9	ND (0.1) *	2.9	14	ND (1)	ND (1)	ND (2) *	36	36
	10/07/08	2 - 3	N	ND (2.1) *	ND (1)	120	ND (1) *	ND (1)	5.73	970	7.5	13	4.7	ND (0.1) *	1.5	11	ND (1)	ND (1)	ND (2.1) *	34	98
	10/07/08	5 - 6	N	ND (2.1) *	ND (1)	84	ND (1) *	ND (1)	4.34	370	6.9	11	3.9	ND (0.1) *	1.1	11	ND (1)	ND (1)	ND (2.1) *	26	130
	10/07/08	9 - 10	N	ND (2.1) *	4.5	86	ND (2.1) *	ND (1)	2.92	140	10	14	3.1	ND (0.1) *	ND (2.1) *	15	ND (1)	ND (2.1)	ND (4.2) *	33	68
	10/07/08	19 - 20	N	ND (2.1) *	5.8	56	ND (2.1) *	ND (1.1) *	ND (0.423)	26	10	9.2	3	ND (0.11) *	ND (2.1) *	16	ND (1.1)	ND (2.1)	ND (4.2) *	38	45
	10/07/08	29 - 30	N	ND (2.1) *	6.2	38	ND (2.1) *	ND (1)	ND (0.424)	21	8.5	8.9	2.7	ND (0.1) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.2) *	31	37
	10/07/08	29 - 30	FD	ND (2.1) *	9.7	40	ND (5.3) *	ND (1.1) *	ND (0.423)	24	8.7	ND (11)	2.2	ND (0.11) *	ND (5.3) *	16	ND (1.1)	ND (5.3) *	ND (11) *	34	36
	10/07/08	39 - 40	N	ND (2.1) *	6.4	79	ND (2.1) *	ND (1.1) *	ND (0.431)	22	8.9	11	3.6	ND (0.11) *	ND (2.1) *	16	ND (1.1)	ND (2.1)	ND (4.3) *	34	42
	10/07/08	49 - 50	N	ND (2.1) *	4.1	62	ND (1.1) *	ND (1.1) *	ND (0.425)	28	9.3	10	2.1	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	36	38
	10/08/08	59 - 60	N	ND (2) *	5.3	36	ND (2) *	ND (1)	ND (0.406)	39	9	9.8	2.2	ND (0.1) *	4.7	13	ND (1)	ND (2)	ND (4) *	33	32
	10/08/08	69 - 70	N	ND (2.2) *	4.4	41	ND (1.1) *	ND (1.1) *	ND (0.435)	18	9.1	9.8	2.8	ND (0.11) *	2.2	13	ND (1.1)	ND (1.1)	ND (2.2) *	31	31
AOC1-T2e	10/16/08	0 - 0.5	N	ND (2) *	2.9	98	ND (1) *	ND (1)	ND (0.405)	34	7.5	9.3	3.4	ND (0.1) *	2.2	13	ND (1)	ND (1)	ND (2) *	29	36
	10/16/08	2 - 3	N	ND (2) *	2.9	87	ND (1) *	ND (1)	ND (0.408)	30	6.9	8.4	3.2	ND (0.1) *	1.4	12	ND (1)	ND (1)	ND (2) *	27	30
	10/16/08	2 - 3	FD	ND (2) *	3.1	90	ND (1) *	ND (1)	ND (0.408)	32	7.1	8	3.2	ND (0.1) *	1.3	12	ND (1)	ND (1)	ND (2) *	27	33
	10/16/08	5 - 6	N	ND (2) *	2.6	98	ND (1) *	ND (1)	ND (0.402)	44	7	8.4	2.3	ND (0.1) *	5.4	12	ND (1)	ND (1)	ND (2) *	26	32
	10/16/08	9 - 10	N	ND (2.1) *	2.5	100	ND (1) *	ND (1)	ND (0.415)	20	6.4	4.9	1.1	ND (0.1) *	1.1	9	ND (1)	ND (1)	ND (2.1) *	24	27
AOC1-T3a	10/05/08	0 - 0.5	N	ND (2) *	4.1	150	ND (1) *	ND (1)	ND (0.403)	24	7.8	11	8.4	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	33	47
	10/17/08	2 - 3	N	ND (2) *	4.4	110	ND (1) *	ND (1)	ND (0.407)	19	7.1	9	4.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	29	37
	10/17/08	5 - 6	N	ND (2) *	4.2	110	ND (1) *	ND (1)	ND (0.405)	23	7	12	14	ND (0.1) *	1.7	12	ND (1)	ND (1)	ND (2) *	28	39
	10/17/08	9 - 10	N	ND (2) *	2.9	99	ND (1) *	ND (1)	ND (0.406)	15	7.2	10	1.9	ND (0.1) *	ND (1)	9.8	ND (1)	ND (1)	ND (2) *	26	33
AOC1-T3b	10/05/08	0 - 0.5	N	ND (2) *	2.6	78	ND (1) *	ND (1)	ND (0.402)	23	7	8	3.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	35	29
	10/17/08	2 - 3	N	ND (2.1) *	3.1	120	ND (1) *	ND (1)	2.77	170	6.5	13	9.1	ND (0.11) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	26	120
	10/17/08	5 - 6	N	ND (2) *	2.3	92	ND (1) *	ND (1)	ND (0.405)	46	7	8.6	2.3	ND (0.1) *	4.6	12	ND (1)	ND (1)	ND (2) *	25	34
	10/17/08	9 - 10	N	ND (2) *	2.7	110	ND (1) *	ND (1)	ND (0.41)	17	7.3	7.7	1.7	ND (0.1) *	1.1	9.4	ND (1)	ND (1)	ND (2) *	28	31
	10/17/08	9 - 10	FD	ND (2.1) *	2.5	110	ND (1) *	ND (1)	ND (0.412)	16	7.2	6.5	1.9	ND (0.1) *	1.1	9.5	ND (1)	ND (1)	ND (2.1) *	29	32

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC1-T3c	10/05/08	0 - 0.5	N	ND (2) *	4.6	130	ND (1) *	ND (1)	0.42	27	6.5	11	7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	29	46
	10/05/08	2 - 3	N	ND (2) *	3.5	98	ND (1) *	ND (1)	ND (0.41)	30	8.9	9.7	3.4	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	33	39
	10/05/08	5 - 6	N	ND (2) *	3.7	130	ND (1) *	ND (1)	1.65	89	8.8	12	5.8	ND (0.1) *	1.4	14	ND (1)	ND (1)	ND (2) *	34	65
	10/05/08	9 - 10	N	ND (2) *	2.7	94	ND (1) *	ND (1)	ND (0.403)	19	8.2	10	2.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	36
AOC1-T4a	10/03/08	0 - 0.5	N	ND (2) *	4.2	120	ND (1) *	ND (1)	ND (0.402)	28	7.3	11	5.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	26	51
	10/03/08	2 - 3	N	ND (2) *	3.9	99	ND (1) *	ND (1)	ND (0.407)	26	7.7	10	4	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	31	40
	10/03/08	5 - 6	N	ND (2) *	4	89	ND (1) *	ND (1)	ND (0.409)	25	8.3	11	3.3	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	34	40
	10/03/08	9 - 10	N	ND (2) *	3.7	160	ND (1) *	ND (1)	0.525	26	6.9	9.6	4.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	28	36
AOC1-T4b	10/02/08	0 - 0.5	N	ND (2) *	2.9	83	ND (1) *	ND (1)	1.26	21	6.3	7.5	2.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	22	29
	10/02/08	2 - 3	N	ND (2) *	3.7	120	ND (1) *	ND (1)	ND (0.412)	29	7.6	12	8.8 J	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	33	46
	10/02/08	2 - 3	FD	ND (2) *	3.5	110	ND (1) *	ND (1)	ND (0.408)	28	7.2	11	7 J	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	31	50
	10/02/08	5 - 6	N	ND (2.1) *	3.6	110	ND (1) *	ND (1)	ND (0.419)	24	9.9	9.6	3.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	33	39
	10/02/08	9 - 10	N	ND (2.1) *	3.2	100	ND (1) *	ND (1)	ND (0.415)	19	7.7	8.8	2.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	31	37
AOC1-T4c	10/04/08	0 - 0.5	N	ND (2) J*	4.2	100	ND (1) *	ND (1)	ND (0.403)	19	5.5	22	5.9	ND (0.1) *	ND (1)	9.4	ND (1)	ND (1)	ND (2) *	25	33
	10/04/08	2 - 3	N	ND (2) *	3.8	130	ND (1) *	ND (1)	0.816	27	8.9	19	14	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	38	67
	10/04/08	5 - 6	N	ND (2) *	3.3	150	ND (1) *	ND (1)	0.868	28	9.2	21	19	ND (0.1) *	1.3	13	ND (1)	ND (1)	ND (2) *	36	71
	10/04/08	9 - 10	N	ND (2.1) *	3.1	120	ND (1) *	ND (1)	ND (0.413)	27	8.3	13	5.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	35	47
AOC1-T5a	10/04/08	0 - 0.5	N	ND (2) *	3.1	150	ND (1) *	ND (1)	ND (0.402)	21	7.8	13	4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	41
	10/04/08	2 - 3	N	ND (2) *	2.8	95	ND (1) *	ND (1)	ND (0.403)	39	9	10	3.2	ND (0.099) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	32	38
	10/04/08	5 - 6	N	ND (2) *	3.8	99	ND (1) *	ND (1)	ND (0.405)	35	9	24	3.4	ND (0.1) *	2.2	17	ND (1)	ND (1)	ND (2) *	32	38
	10/04/08	9 - 10	N	ND (2) *	2.6	110	ND (1) *	ND (1)	ND (0.411)	24	7.4	11	3.6	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	30	38
	10/04/08	9 - 10	FD	ND (2) *	2.4	110	ND (1) *	ND (1)	ND (0.409)	27	7.8	11	3.1	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	38
AOC1-T5b	10/04/08	0 - 0.5	N	ND (2) J*	2.4	73	ND (1) *	ND (1)	ND (0.402)	26	6.8	11	4.9	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	28	33
	10/04/08	2 - 3	N	ND (2) *	3.3	110	ND (1) *	ND (1)	0.452	41	7.2	9.5	4.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	38
	10/04/08	5 - 6	N	ND (2) *	3.4	120	ND (1) *	ND (1)	0.596	61	7.9	9.8	4.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	31	41
	10/04/08	9 - 10	N	ND (2) *	3.5	120	ND (1) *	ND (1)	ND (0.409)	23	9.6	13	3.4	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	39	41
AOC1-T5c	10/04/08	0 - 0.5	N	ND (2) *	3.7	140	ND (1) *	ND (1)	ND (0.403)	15	6.7	8.8	5.8	ND (0.1) *	ND (1)	8.7	ND (1)	ND (1)	ND (2) *	27	37
	10/04/08	2 - 3	N	ND (2) *	3.3	150	ND (1) *	ND (1)	0.875	31	8.6	12	7.5	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	35	53
	10/04/08	5 - 6	N	ND (2) *	3.1	130	ND (1) *	ND (1)	0.641	36	7.2	12	11	ND (0.099) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	49
	10/04/08	9 - 10	N	ND (2) *	3.5	130	ND (1) *	ND (1)	0.478	21	7.7	9.8	3.9	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	39
AOC1-T6a	09/30/08	0 - 0.5	N	ND (2) *	3.2	96	ND (1) *	ND (1)	ND (0.402)	20	6.3	11	5.6	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	28	47
	09/30/08	2.5 - 3	N	ND (2) *	3.2	110	ND (1) *	ND (1)	ND (0.408)	20	6.9	8.9	5.6	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	36
	09/30/08	2.5 - 3	FD	ND (2) *	3.1	100	ND (1) *	ND (1)	ND (0.407)	21	6.6	8.8	5.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	40
	09/30/08	5.5 - 6	N	ND (2) *	2.3	94	ND (1) *	ND (1)	ND (0.408)	16	7.2	7.9	3.9	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	33	34
	09/30/08	9.5 - 10	N	ND (2) *	3.2	110	ND (1) *	ND (1)	ND (0.41)	20	7	8.7	12	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	40

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC1-T6b	09/30/08	0 - 0.5	N	ND (2) *	3	110	ND (1) *	ND (1)	ND (0.401)	26	6.3	9	5.5	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	31	41
	09/30/08	2.5 - 3	N	ND (2) *	3.4	130	ND (1) *	ND (1)	ND (0.404)	18	5.7	7.1	4.4	ND (0.1) *	ND (1)	8.5	ND (1)	ND (1)	ND (2) *	25	29
	09/30/08	5.5 - 6	N	ND (2) *	2.9	100	ND (1) *	ND (1)	ND (0.404)	22	7.3	10	3.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	36
	09/30/08	9.5 - 10	N	ND (2) *	2.8	94	ND (1) *	ND (1)	ND (0.405)	25	7	9.3	3.1 J	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	30	37
	09/30/08	9.5 - 10	FD	ND (2) *	3	110	ND (1) *	ND (1)	ND (0.404)	27	7.9	10	8.5 J	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	33	39
AOC1-T6c	09/30/08	0 - 0.5	N	ND (2) *	2.9	81	ND (1) *	ND (1)	ND (0.401)	18	6.4	8.7	3.2	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	25	39
	09/30/08	2.5 - 3	N	ND (2) *	5.1	94	ND (1) *	ND (1)	ND (0.407)	26	6.6	9.7	5.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	37
	09/30/08	5.5 - 6	N	ND (2) *	2.4	110	ND (1) *	ND (1)	ND (0.406)	21	9	9.4	2.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	32	37
AOC4-1	10/14/08	0 - 0.5	N	ND (2) J*	3.7	440 J	ND (1) *	ND (1)	0.49	47	6.7	16	8.5	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2) *	23	48
	10/14/08	0.5 - 1	N	ND (2) *	4	120	ND (1) *	ND (1)	ND (0.404)	32	9.6	13	10	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	32	47
	10/14/08	2 - 3	N	ND (2) *	3.6	120	ND (1) *	ND (1)	ND (0.405)	20	7.4	12	17	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	30	39
AOC1-1	01/23/16	0 - 0.5	N	ND (2.1) *	3.5	93	ND (1) *	ND (1)	12	410	6.8	14	5.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	31	74
	01/23/16	2 - 3	N	ND (2) *	2.5	120	ND (1) *	ND (1)	4.1	290	7.6	14	4.5	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	35	74
	01/23/16	5 - 6	N	ND (2) *	2.3	130	ND (1) *	ND (1)	ND (0.2)	15	7	9	2.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	31	34
	01/23/16	9 - 10	N	ND (2) *	1.5	99	ND (1) *	ND (1)	ND (0.2)	17	7.7	9.6	2.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	36	35
	01/23/16	14 - 15	N	ND (2) *	1.8	130	ND (1) *	ND (1)	ND (0.2)	18	9	11	1.8	ND (0.1) *	ND (1)	15 J	ND (1)	ND (1)	ND (2) *	32	36
	01/23/16	14 - 15	FD	ND (2) *	1.5	130	ND (1) *	ND (1)	ND (0.2)	19	8.5	12	1.9	ND (0.1) *	ND (1)	12 J	ND (1)	ND (1)	ND (2) *	35	36
	01/24/16	19 - 20	N	ND (2) *	1.1	100	ND (1) *	ND (1)	ND (0.2)	18	8.7	9	1.3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	36	39
	01/24/16	29 - 30	N	ND (2.1) *	1.5	100	ND (1) *	ND (1)	ND (0.21)	16	9.5	12	2.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	36	41
AOC1-2	01/23/16	0 - 0.5	N	ND (2.1) *	2.2	110	ND (1) *	ND (1)	ND (0.21)	20	7.9	9.1	4.2	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	35	38
	01/23/16	2 - 3	N	ND (2) J*	1.7	180	ND (1) *	ND (1)	ND (0.2)	18 J	8	9.1	1.9	ND (0.1) *	ND (1)	12	ND (1) J	ND (1)	ND (2) *	31	36
	01/23/16	5 - 6	N	ND (2) *	1.7	130	ND (1) *	ND (1)	ND (0.2)	19	8.7	11	1.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	32	36
	01/23/16	9 - 10	N	ND (2) *	ND (1)	74	ND (1) *	ND (1)	ND (0.2)	18	6.7	6.3	1	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	25	28
	01/23/16	14 - 15	N	ND (2) *	ND (1)	92	ND (1) *	ND (1)	ND (0.2)	13	7.9	8.1	1	ND (0.1) *	ND (1)	8.5	ND (1)	ND (1)	ND (2) *	35	34
	01/23/16	19 - 20	N	ND (2) *	1.5	73	ND (1) *	ND (1)	ND (0.2)	16 J	7.8	7.7	1.5	ND (0.1) *	ND (1)	12 J	ND (1)	ND (1)	ND (2) *	30	35
	01/23/16	20 - 30	FD	ND (2) *	1.4	84	ND (1) *	ND (1)	ND (0.2)	13 J	7.6	8	1.3	ND (0.1) *	ND (1)	9.4 J	ND (1)	ND (1)	ND (2) *	33	36
	01/23/16	29 - 30	N	ND (2) *	1.1	94	ND (1) *	ND (1)	ND (0.2)	15	7.8	7.6	1.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	31

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC1-3	01/25/16	0 - 0.5	N	ND (2.1) *	3	100	ND (1) *	ND (1)	14	410	7.9	13	3.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	37	90
	01/25/16	2 - 3	N	ND (2) *	2.4	110	ND (1) *	ND (1)	3.7	210	8.6	11	3.3	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	36	60
	01/25/16	5 - 6	N	ND (2) *	1.2	130	ND (1) *	ND (1)	ND (0.2)	24	8.6	14	1.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	37	39
	01/25/16	9 - 10	N	ND (2) *	1.3	97	ND (1) *	ND (1)	ND (0.2)	13	7.5	7.7	1.4	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2) *	33	32
	01/25/16	14 - 15	N	ND (2) *	1.8	110	ND (1) *	ND (1)	ND (0.2)	17	8.1	10	1.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	38	40
	01/25/16	14 - 15	FD	ND (2) *	1.4	110	ND (1) *	ND (1)	ND (0.2)	19	8.3	9.8	1.3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	37	43
	01/25/16	19 - 20	N	ND (2) *	1.5	120	ND (1) *	ND (1)	ND (0.2)	19	9.5	11	1.6	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	42	38
	01/25/16	29 - 30	N	ND (2) *	1.3	66	ND (1) *	ND (1)	ND (0.2)	15	7.5	11	2.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	34	34
	01/25/16	39 - 40	N	ND (2.2) *	2.7	40	ND (1.1) *	ND (1.1) *	ND (0.22)	22	9.7	10	1.7	ND (0.11) *	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.2) *	35	39
	01/25/16	49 - 50	N	ND (2.1) *	2.8	42	ND (1.1) *	ND (1.1) *	ND (0.21)	23	11	14	2.3	ND (0.11) *	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1) *	45	42
	01/25/16	59 - 60	N	ND (2.1) *	4	42	ND (1.1) *	ND (1.1) *	ND (0.21)	39	10	14	2.2	ND (0.11) *	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.1) *	45	42
	01/26/16	69 - 70	N	ND (2.1) *	2.2	64	ND (1) *	ND (1)	ND (0.21)	20	8.9	19	1.5	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	35	38
	01/26/16	79 - 80	N	ND (2.1) *	2.4	86	ND (1) *	ND (1)	ND (0.21)	17	7.1	13	1.3	ND (0.11) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	29	31
AOC1-4	01/23/16	0 - 0.5	N	ND (2) *	1.9	82	ND (1) *	ND (1)	ND (0.2)	13	6.7	7	1.9	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	26	35
	01/23/16	2 - 3	N	ND (2) *	2	110	ND (1) *	ND (1)	ND (0.2)	19	7.7	8.7	3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	32	30
	01/23/16	5 - 6	N	ND (2) *	1.8	84	ND (1) *	ND (1)	ND (0.2)	14	6.8	10	2.9	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2) *	30	31
	01/23/16	9 - 10	N	ND (2) *	1.8	90	ND (1) *	ND (1)	ND (0.2)	14	7	9.3	2.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	33
	01/23/16	14 - 15	N	ND (2) *	1.8	95	ND (1) *	ND (1)	ND (0.2)	35	7.6	9.1	2	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	33	35
	01/23/16	19 - 20	N	ND (2) *	1.6	99	ND (1) *	ND (1)	ND (0.2)	16	8.4	8.4	1.2	ND (0.1) J*	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	37
	01/23/16	19 - 20	FD	ND (2) J*	1.6	110 J	ND (1) *	ND (1)	ND (0.2)	21	9.9	11	1.3	ND (0.1) *	ND (1)	15	ND (1) J	ND (1)	ND (2) *	39	43 J
	01/23/16	29 - 30	N	ND (2.1) *	2.5	1,400	ND (1.1) *	ND (1.1) *	ND (0.21)	16	8.1	7.9	2.2	ND (0.1) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	32	39
AOC1-5	01/09/17	0 - 0.5	N	ND (2.1) *	1.3	65	ND (1) *	ND (1)	ND (0.21)	14	7.2	7.3	1.5	ND (0.1) *	ND (1)	9.7	ND (1) J	ND (1)	ND (2.1) *	28	26
	01/09/17	2 - 3	N	ND (2.1) *	1.6	76	ND (1) *	ND (1)	ND (0.21)	24	8.8	8.7	ND (1)	ND (0.1) *	ND (1)	12	ND (1) J	ND (1)	ND (2.1) *	42	32
	01/09/17	5 - 6	N	ND (2.1) *	1.4	77	ND (1) *	ND (1)	ND (0.21)	19	7.6	7.9	2.1	ND (0.1) *	ND (1)	10	ND (1) J	ND (1)	ND (2.1) *	27	45
	01/09/17	9 - 10	N	ND (2.1) *	ND (1)	110	ND (1) *	ND (1)	ND (0.21)	13	7.2	9.5	ND (1)	ND (0.1) *	ND (1)	8.6	ND (1) J	ND (1)	ND (2.1) *	29	28
	01/09/17	14 - 15	N	ND (2.1) *	1.7	51	ND (1.1) *	ND (1.1) *	ND (0.21)	18	8.4	8.3	1.9	ND (0.11) *	ND (1.1)	13	ND (1.1) J	ND (1.1)	ND (2.1) *	29	34
AOC1-6	01/09/17	0 - 0.5	N	ND (2.1) *	1.8	69	ND (1) *	ND (1)	0.22	23	8.4	11	2.9	ND (0.1) *	ND (1)	11	ND (1) J	ND (1)	ND (2.1) *	30	34
	01/09/17	2 - 3	N	ND (2.1) *	1.1	60	ND (1) *	ND (1)	ND (0.21)	17	7.1	6.7	1.2	ND (0.1) *	ND (1)	9.4	ND (1) J	ND (1)	ND (2.1) *	25	27
	01/09/17	5 - 6	N	ND (2.1) *	1.3	92	ND (1) *	ND (1)	ND (0.21)	14	8.3	8.8	ND (1)	ND (0.1) *	ND (1)	9.4	ND (1) J	ND (1)	ND (2.1) *	29	30
	01/09/17	9 - 10	N	ND (2.1) *	2.1	50	ND (1) *	ND (1)	ND (0.21)	21	9.9	8.3	1.5	ND (0.1) *	ND (1)	13	ND (1) J	ND (1)	ND (2.1) *	36	35
	01/09/17	14 - 15	N	ND (2.1) *	2.8	52	ND (1) *	ND (1)	ND (0.21)	23	9.4	7.3	1.6	ND (0.1) *	ND (1)	17	ND (1) J	ND (1)	ND (2.1) *	32	38
AOC16-5	02/20/17	0 - 0.5	N	ND (2.1) *	1.5	130	ND (1) *	1.4	0.56	28 J	5.7 J	18 J	29 J	---	ND (1)	9.8 J	ND (1) J	ND (1)	ND (2.1) J*	20 J	46 J
	02/20/17	0 - 0.5	FD	ND (2.1) *	1.7	130	ND (1) *	1.3	0.61	22 J	8.1 J	11 J	3.9 J	0.12	ND (1)	14 J	ND (1) J	ND (1)	ND (2.1) J*	25 J	36 J
	02/20/17	2 - 3	N	ND (2.1) *	1.3	84	ND (1) *	1.1	ND (0.21)	13	7.6	28	1.3	ND (0.1) *	ND (1)	12	ND (1) J	ND (1)	ND (2.1) J*	22	25

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC1-7	01/09/17	0 - 0.5	N	ND (2.1) *	1.6 J	56	ND (1) *	ND (1)	ND (0.21)	14	6.4	9.4	1.6	ND (0.1) *	ND (1)	9.3 J	ND (1) J	ND (1)	ND (2.1) *	21	28 J
	01/09/17	2 - 3	N	ND (2.1) *	1.7	62	ND (1) *	ND (1)	ND (0.21)	20	9.5	9	1.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	34	35
	01/09/17	2 - 3	FD	ND (2.1) *	1.6	56	ND (1) *	ND (1)	ND (0.21)	18	8.6	7.1	1.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	30	33
	01/09/17	5 - 6	N	ND (2.1) *	1.6	51	ND (1) *	ND (1)	ND (0.21)	18	9.3	6.3	1.1	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	33	35
	01/09/17	9 - 10	N	ND (2.1) *	1.9	86	ND (1) *	ND (1)	ND (0.21)	25	11	8.8	1.6	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	38	42
	01/09/17	14 - 15	N	ND (2.1) *	1.9	61	ND (1) *	ND (1)	ND (0.21)	22	10	9.2	1.3	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	36	38
AOC1-8	01/05/17	0 - 0.5	N	ND (2.1) *	2.2	110	ND (1.1) *	ND (1.1) *	ND (0.21)	26	6.1	12	4.1	ND (0.11) *	ND (1.1)	9.9	ND (1.1) J	ND (1.1)	ND (2.1) J*	22	41
	01/05/17	2 - 3	N	ND (2.4) *	2.4	130	ND (1.2) *	ND (1.2) *	0.24	16	5.8	10	12	ND (0.12) *	ND (1.2)	7.3	ND (1.2) J	ND (1.2)	ND (2.4) J*	24	40
AOC1-BCW10	02/04/16	0 - 0.5	N	ND (2.1) *	3.6	190	ND (1) *	ND (1)	ND (0.21)	52	8.5	16	11	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	33	65
	02/04/16	2 - 3	N	ND (2.1) *	3.4	190	ND (1) *	ND (1)	0.42	66	8.8	15	11	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	32	63
	02/04/16	5 - 6	N	ND (2) *	1.7	100	ND (1) *	ND (1)	ND (0.2)	17	7.8	9.5	1.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	30	35
	02/04/16	9 - 10	N	ND (2.1) *	2.6	150	ND (1) *	ND (1)	ND (0.21)	25 J	11	7.9	1.8	ND (0.11) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	40	49
	02/04/16	9 - 10	FD	ND (2.1) *	2.5	160	ND (1.1) *	ND (1.1) *	ND (0.21)	19 J	11	8.2	1.9	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	41	44
AOC1-BCW11	02/04/16	0 - 0.5	N	ND (2.1) *	4.4	180	ND (1.1) *	ND (1.1) *	ND (0.21) J	19	6.6	14	8.5	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	25	54
	02/04/16	2 - 3	N	ND (2) *	2.5	180	ND (1) *	ND (1)	0.36	38	11	15	6.3	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	41	54
	02/04/16	5 - 6	N	ND (2.1) *	3.3	210	ND (1) *	ND (1)	0.5	54	10	16	7.3	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	38	62
	02/04/16	9 - 10	N	ND (2.2) *	2.1	91	ND (1.1) *	ND (1.1) *	ND (0.22)	11	6.5	6	ND (1.1)	ND (0.11) *	ND (1.1)	7.3	ND (1.1)	ND (1.1)	ND (2.2) *	22	27
AOC1-BCW12	02/04/16	0 - 0.5	N	ND (2.2) *	4.3	200	ND (1.1) *	ND (1.1) *	ND (0.23)	29	7.5	15	9.8	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	30	74
	02/04/16	2 - 3	N	ND (2.3) *	4	190	ND (1.1) *	ND (1.1) *	0.8	48	7.7	17	10	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.3) *	31	58
	02/04/16	5 - 6	N	ND (2.1) *	2.5	110	ND (1.1) *	ND (1.1) *	ND (0.21)	12	6.2	6.9	2	ND (0.11) *	ND (1.1)	8.3	ND (1.1)	ND (1.1)	ND (2.1) *	24	30
	02/04/16	9 - 10	N	ND (2.1) *	2.1	92	ND (1.1) *	ND (1.1) *	ND (0.21)	13	7.3	6.5	1.3	ND (0.11) *	ND (1.1)	8.2	ND (1.1)	ND (1.1)	ND (2.1) *	26	29
AOC1-BCW13	02/04/16	0 - 0.5	N	ND (2.1) *	3.7	190	ND (1.1) *	ND (1.1) *	ND (0.21)	29	8	16	8.7	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	31	62
	02/04/16	2 - 3	N	ND (2.1) *	2.4	190	ND (1.1) *	ND (1.1) *	0.22	22	10	17	1.5	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	39	44
	02/04/16	5 - 6	N	ND (2.2) *	3.4	73	ND (1.1) *	ND (1.1) *	ND (0.22)	17	9.3	11	2	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2) *	34	39
	02/04/16	9 - 10	N	ND (2.2) *	2.5	140	ND (1.1) *	ND (1.1) *	ND (0.22)	16	8.6	6.5	1.5	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	30	35
AOC1-BCW14	02/04/16	0 - 0.5	N	ND (2.1) *	2.5	150	ND (1.1) *	ND (1.1) *	ND (0.21)	28	9.5	12	4.7	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	39	49
	02/04/16	2 - 3	N	ND (2.1) *	2.5	110	ND (1) *	ND (1)	0.23	15	7.7	10	3.6	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	32	34
	02/04/16	5 - 6	N	ND (2.1) J*	ND (1)	88 J	ND (1) *	ND (1)	ND (0.21)	14	8	8.8	1.3	ND (0.1) *	ND (1)	9.6	ND (1) J	ND (1)	ND (2.1) *	29	34
	02/04/16	9 - 10	N	ND (2.1) *	4.5	280	ND (1.1) *	ND (1.1) *	ND (0.21)	19	11	22	1.2	ND (0.11) *	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1) *	37	29
AOC1-BCW15	02/04/16	0 - 0.5	N	ND (2.3) *	4.7	180	ND (1.2) *	ND (1.2) *	ND (0.23)	21	6.6	15	9.2	ND (0.12) *	ND (1.2)	12	ND (1.2)	ND (1.2)	ND (2.3) *	27	52
	02/04/16	2 - 3	N	ND (2.5) *	2.5	140	ND (1.2) *	ND (1.2) *	0.54	43	7	17	9.9	ND (0.13) *	ND (1.2)	12	ND (1.2)	ND (1.2)	ND (2.5) *	29	49
	02/04/16	5 - 6	N	ND (2.2) *	ND (1.1)	95	ND (1.1) *	ND (1.1) *	ND (0.22)	14	8.5	6.6	1.4	ND (0.11) *	ND (1.1)	9.9	ND (1.1)	ND (1.1)	ND (2.2) *	32	39
	02/04/16	9 - 10	N	ND (2.2) *	ND (1.1)	140	ND (1.1) *	ND (1.1) *	ND (0.22)	16	7.5	6.9	ND (1.1)	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2) *	29	37
AOC1-BCW16	02/04/16	0 - 0.5	N	ND (2.2) *	2.4	150	ND (1.1) *	ND (1.1) *	ND (0.22)	30	8.9	13	5.8	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2) *	38	46
	02/04/16	2 - 3	N	ND (2.4) *	4.2	200	ND (1.2) *	ND (1.2) *	0.36	50	7.4	18	12	ND (0.12) *	ND (1.2)	12	ND (1.2)	ND (1.2)	ND (2.4) *	31	51
	02/04/16	5 - 6	N	ND (2.1) *	2.2	78	ND (1.1) *	ND (1.1) *	ND (0.21)	15	6.3	8.1	1.3	ND (0.11) *	ND (1.1)	8.8	ND (1.1)	ND (1.1)	ND (2.1) *	27	28
	02/04/16	9 - 10	N	ND (2.1) *	1.8	40	ND (1.1) *	ND (1.1) *	ND (0.21)	10	5.5	6.2	ND (1.1)	ND (0.11) *	ND (1.1)	7.7	ND (1.1)	ND (1.1)	ND (2.1) *	24	22

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC1-BCW17	02/04/16	0 - 0.5	N	ND (2.3) *	2.7	140	ND (1.1) *	ND (1.1) *	ND (0.23)	15	6.9	13	5.1	ND (0.11) *	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.3) *	28	36
	02/04/16	2 - 3	N	ND (2.1) *	ND (1.1)	110	ND (1.1) *	ND (1.1) *	ND (0.21)	23	9.1	18	1.4	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	36	41
	02/04/16	5 - 6	N	ND (2.1) *	ND (1.1)	120	ND (1.1) *	ND (1.1) *	ND (0.21)	18	8.5	18	2	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	34	38
	02/04/16	9 - 10	N	ND (2.1) *	ND (1.1)	250	ND (1.1) *	ND (1.1) *	ND (0.21)	19	8.3	15	1.7	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	34	39
AOC1-BCW18	02/05/16	0 - 0.5	N	ND (2.6) *	3.7	250	ND (1.3) *	ND (1.3) *	ND (0.26)	46	9.4	19	13	ND (0.13) *	ND (1.3)	18	ND (1.3)	ND (1.3)	ND (2.6) *	39	68
	02/05/16	2 - 3	N	ND (2.5) *	2.9	180	ND (1.2) *	ND (1.2) *	ND (0.25)	10	5.5	7	3.5	ND (0.12) *	ND (1.2)	7.6	ND (1.2)	ND (1.2)	ND (2.5) *	23	30
	02/05/16	5 - 6	N	ND (2.2) *	1.7	110	ND (1.1) *	ND (1.1) *	ND (0.22)	9.6	5.8	6.9	ND (1.1)	ND (0.11) *	ND (1.1)	7.6	ND (1.1)	ND (1.1)	ND (2.2) *	22	28
	02/05/16	9 - 10	N	ND (2.2) *	2.4	180	ND (1.1) *	ND (1.1) *	ND (0.22)	17	8.4	6	1.5	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	33	35
AOC1-BCW19	02/05/16	0 - 0.5	N	ND (2.3) J*	3.3	190	ND (1.2) *	ND (1.2) *	1.4	58	8.5	15	11	ND (0.12) *	ND (1.2)	15	ND (1.2) J	ND (1.2)	ND (2.3) *	34	60
	02/05/16	2 - 3	N	ND (2.1) *	1.4	60	ND (1) *	ND (1)	ND (0.21)	12	7.1	6.9	1.4	ND (0.1) *	ND (1)	8.2	ND (1)	ND (1)	ND (2.1) *	26	27
	02/05/16	5 - 6	N	ND (2.1) *	ND (1)	62	ND (1) *	ND (1)	ND (0.21)	15	8.2	6.9	1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	32	34
	02/05/16	9 - 10	N	ND (2.2) *	1.9	59	ND (1.1) *	ND (1.1) *	ND (0.22)	12	7.1	7.7	ND (1.1)	ND (0.11) *	ND (1.1)	8.6	ND (1.1)	ND (1.1)	ND (2.2) *	31	31
AOC1-BCW20	02/05/16	0 - 0.5	N	ND (2.1) *	ND (1)	75	ND (1) *	ND (1)	ND (0.21)	20	8.7	8.2	2.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	35	38
	02/05/16	2 - 3	N	ND (2.1) *	1.8	67	ND (1.1) *	ND (1.1) *	ND (0.21)	14	7.3	7.4	1.6	ND (0.11) *	ND (1.1)	9.9	ND (1.1)	ND (1.1)	ND (2.1) *	34	31
	02/05/16	5 - 6	N	ND (2.3) *	1.6	71	ND (1.1) *	ND (1.1) *	ND (0.22)	12	7.1	8.7	1.4	ND (0.11) *	ND (1.1)	8.9	ND (1.1)	ND (1.1)	ND (2.3) *	29	29
	02/05/16	9 - 10	N	ND (2.3) *	2.4	70	ND (1.1) *	ND (1.1) *	ND (0.23)	22	11	17	2.9	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.3) *	43	48
AOC1-BCW21	02/05/16	0 - 0.5	N	ND (2.3) *	3.3	190	ND (1.1) *	ND (1.1) *	ND (0.23)	42	8.6	17	13	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.3) *	36	64
	02/05/16	2 - 3	N	ND (2.2) *	2.9	110	ND (1.1) *	ND (1.1) *	ND (0.22)	22	10	9.7	3.2	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2) *	38	40
	02/05/16	5 - 6	N	ND (2.2) *	2	420	ND (1.1) *	ND (1.1) *	ND (0.22)	15	7.2	13	1.6	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	29	33
	02/05/16	9 - 10	N	ND (2.2) *	2	140	ND (1.1) *	ND (1.1) *	ND (0.22)	19	9.1	14	2	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	41	40
AOC1-BCW22	02/05/16	0 - 0.5	N	ND (2.1) *	3.9	72	ND (1) *	ND (1)	ND (0.21)	12	4.6	7	6.1	ND (0.1) *	ND (1)	6.8	ND (1)	ND (1)	ND (2.1) *	23	26
	02/05/16	2 - 3	N	ND (2.1) *	3.9	120	ND (1) *	ND (1)	ND (0.21)	20	6.6	10	16	ND (0.11) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	30	43
	02/05/16	5 - 6	N	ND (2.1) *	2.9	90	ND (1) *	ND (1)	ND (0.21)	16	7.6	7.7	4.2	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2.1) *	36	36
	02/05/16	9 - 10	N	ND (2.2) *	2.2	66	ND (1.1) *	ND (1.1) *	ND (0.22)	15	7.2	8.8	ND (1.1)	ND (0.11) *	ND (1.1)	9.6	ND (1.1)	ND (1.1)	ND (2.2) *	29	33
AOC1-BCW23	02/05/16	0 - 0.5	N	ND (2.6) *	6.9	270	ND (1.3) *	ND (1.3) *	ND (0.26)	38	9.6	22	16	ND (0.13) *	ND (1.3)	18	ND (1.3)	ND (1.3)	ND (2.6) *	42	84
	02/05/16	2 - 3	N	ND (2.4) *	3.3	180	ND (1.2) *	ND (1.2) *	ND (0.24)	17	7.6	12	6.9	ND (0.12) *	ND (1.2)	12	ND (1.2)	ND (1.2)	ND (2.4) *	33	47
	02/05/16	5 - 6	N	ND (2.2) *	2.3	55	ND (1.1) *	ND (1.1) *	ND (0.22)	11	5.9	5.7	1.7	ND (0.11) *	ND (1.1)	6.9	ND (1.1)	ND (1.1)	ND (2.2) *	28	24
	02/05/16	9 - 10	N	ND (2.2) *	2	120	ND (1.1) *	ND (1.1) *	ND (0.22)	13	7.3	7.6	1.5	ND (0.11) *	ND (1.1)	8.7	ND (1.1)	ND (1.1)	ND (2.2) *	29	33
AOC1-BCW24	02/05/16	0 - 0.5	N	ND (2.4) J*	3.4	170	ND (1.2) *	ND (1.2) *	ND (0.24)	30	9.2	14	7.4	ND (0.12) *	ND (1.2)	15	ND (1.2) J	ND (1.2)	ND (2.4) *	40	56
	02/05/16	2 - 3	N	ND (2.4) *	2.7	170	ND (1.2) *	ND (1.2) *	0.28	29	6.7	15	8.8	ND (0.12) *	ND (1.2)	11	ND (1.2)	ND (1.2)	ND (2.4) *	29	49
	02/05/16	5 - 6	N	ND (2.2) *	1.9	55	ND (1.1) *	ND (1.1) *	ND (0.22)	11	7.3	7.7	1.1	ND (0.11) *	ND (1.1)	8	ND (1.1)	ND (1.1)	ND (2.2) *	28	27
	02/05/16	9 - 10	N	ND (2.2) *	1.9	43	ND (1.1) *	ND (1.1) *	ND (0.22)	7.9	4.5	4.9	1.3	ND (0.11) *	ND (1.1)	5.6	ND (1.1)	ND (1.1)	ND (2.2) *	19	21
AOC1-BCW25	02/05/16	0 - 0.5	N	ND (2.6) *	5.1	230	ND (1.3) *	ND (1.3) *	ND (0.26)	39	9.4	18	11	ND (0.13) *	ND (1.3)	16	ND (1.3)	ND (1.3)	ND (2.6) *	41	69
	02/05/16	2 - 3	N	ND (2.6) *	3.6	180	ND (1.3) *	ND (1.3) *	ND (0.26)	21	9.2	14	3.8	ND (0.13) *	ND (1.3)	12	ND (1.3)	ND (1.3)	ND (2.6) *	38	42
	02/05/16	5 - 6	N	ND (2.2) *	2.2	110	ND (1.1) *	ND (1.1) *	ND (0.22)	13	7.5	7.9	2.6	ND (0.11) *	ND (1.1)	8.8	ND (1.1)	ND (1.1)	ND (2.2) *	31	37
	02/05/16	9 - 10	N	ND (2.2) *	2	120	ND (1.1) *	ND (1.1) *	ND (0.22)	16	9.1	14	2	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	38	42

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC1-BCW26	02/04/16	0 - 0.5	N	ND (2.2) *	5	170	ND (1.1) *	ND (1.1) *	ND (0.22)	35	9	15	8.9	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	35	59
	02/04/16	2 - 3	N	ND (2.5) *	7.1	190	ND (1.3) *	ND (1.3) *	ND (0.25)	12	6.3	10	8.2	ND (0.13) *	ND (1.3)	9.8	ND (1.3)	ND (1.3)	ND (2.5) *	23	43
	02/04/16	5 - 6	N	ND (2.1) *	3.3	74	ND (1.1) *	ND (1.1) *	ND (0.21)	13	6.8	11	3.6	ND (0.11) *	ND (1.1)	9.2	ND (1.1)	ND (1.1)	ND (2.1) *	24	33
	02/04/16	9 - 10	N	ND (2.4) *	3.3	42	ND (1.2) *	1.3	ND (0.24)	19	9	25	3.1	ND (0.12) *	ND (1.2)	14	ND (1.2)	ND (1.2)	ND (2.4) *	35	40
AOC1-BCW27	02/05/16	0 - 0.5	N	ND (2.4) *	5.2	210	ND (1.2) *	ND (1.2) *	ND (0.24)	33	8.1	17	17	ND (0.12) *	ND (1.2)	15	ND (1.2)	ND (1.2)	ND (2.4) *	35	59
	02/05/16	2 - 3	N	ND (2.3) *	1.7	65	ND (1.1) *	ND (1.1) *	ND (0.23)	12	8	8.6	2	ND (0.11) *	ND (1.1)	9.2	ND (1.1)	ND (1.1)	ND (2.3) *	36	33
	02/05/16	5 - 6	N	ND (2.1) *	1.4	53	ND (1.1) *	ND (1.1) *	ND (0.21)	9.7	6.3	9	1.3	ND (0.11) *	ND (1.1)	7	ND (1.1)	ND (1.1)	ND (2.1) *	26	29
	02/05/16	9 - 10	N	ND (2.3) *	1.9	78	ND (1.1) *	ND (1.1) *	ND (0.23)	15	7.4	7.4	2.2	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.3) *	30	31
AOC1-BCW28	02/05/16	0 - 0.5	N	ND (2.4) *	5.1	270	ND (1.2) *	ND (1.2) *	0.3	49	9.2	19	14	ND (0.12) *	ND (1.2)	17	ND (1.2)	ND (1.2)	ND (2.4) *	39	73
	02/05/16	2 - 3	N	ND (2.3) *	4.6	150	ND (1.2) *	ND (1.2) *	ND (0.23)	18	6.8	10	4.2	ND (0.11) *	ND (1.2)	9.9	ND (1.2)	ND (1.2)	ND (2.3) *	32	38
	02/05/16	5 - 6	N	ND (2.2) *	1.3	96	ND (1.1) *	1.1	ND (0.22)	18	7.8	8.3	1.4	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2) *	29	33
	02/05/16	9 - 10	N	ND (2.2) *	1.8	110	ND (1.1) *	ND (1.1) *	ND (0.22)	18	8.9	11	2.1	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	36	39
AOC1-BCW29	02/04/16	0 - 0.5	N	ND (2.6) *	4.3	160	ND (1.3) *	ND (1.3) *	ND (0.26)	33	8.7	15	8.3	ND (0.13) *	ND (1.3)	14	ND (1.3)	ND (1.3)	ND (2.6) *	38	56
	02/04/16	2 - 3	N	ND (2.7) *	4.2	210	ND (1.4) *	ND (1.4) *	ND (0.27)	17	8.7	13	5.2	ND (0.14) *	ND (1.4) *	13	ND (1.4)	ND (1.4)	ND (2.7) *	31	49
	02/04/16	5 - 6	N	ND (3.1) *	5.4	350	ND (1.5) *	ND (1.5) *	ND (0.31)	27	14	23	7.6	ND (0.15) *	ND (1.5) *	19	ND (1.5) *	ND (1.5)	ND (3.1) *	46	66
	02/04/16	9 - 10	N	ND (2.4) *	2.7	74	ND (1.2) *	ND (1.2) *	ND (0.24) J	11	7.3	7.1	ND (1.2)	ND (0.12) *	ND (1.2)	9.6	ND (1.2)	ND (1.2)	ND (2.4) *	32	29
AOC1-BCW30	02/04/16	0 - 0.5	N	ND (2.4) J*	5.5	220	ND (1.2) *	ND (1.2) *	ND (0.24)	42	7.3	18	17 J	ND (0.12) *	ND (1.2) J	14	ND (1.2) J	ND (1.2)	ND (2.4) J*	28	61
	02/04/16	2 - 3	N	ND (2.4) *	3.4	140	ND (1.2) *	ND (1.2) *	0.26	14	6	8.7	2.7	ND (0.12) *	ND (1.2)	11	ND (1.2)	ND (1.2)	ND (2.4) *	22	28
	02/04/16	5 - 6	N	ND (2.3) *	3.7	210	ND (1.2) *	ND (1.2) *	ND (0.23)	12	6	8.4	2.9	ND (0.12) *	ND (1.2)	9.6	ND (1.2)	ND (1.2)	ND (2.3) *	23	29
	02/04/16	9 - 10	N	ND (2.3) *	2.7	49	ND (1.2) *	ND (1.2) *	ND (0.23)	8.8	5.8	7.8	ND (1.2)	ND (0.12) *	ND (1.2)	6.3	ND (1.2)	ND (1.2)	ND (2.3) *	19	27
AOC1-BCW7	02/05/16	0 - 0.5	N	ND (2) *	2.2	74	ND (1) *	ND (1)	0.29	18	6.3	18	8	ND (0.1) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	24	34
	02/05/16	2 - 3	N	ND (2.1) *	3.5	80	ND (1) *	ND (1)	0.36	20	7	8.4	1.7	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	25	29
	02/05/16	2 - 3	FD	ND (2.1) *	4.3	91	ND (1) *	ND (1)	0.28	23	6.3	7.5	1.7	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	25	27
	02/05/16	5 - 6	N	ND (2.1) *	6.7	150	ND (1) *	ND (1)	ND (0.21)	15	3.3	6.2	2.2	ND (0.1) *	ND (1)	7.5	ND (1)	ND (1)	ND (2.1) *	15	15
	02/05/16	9 - 10	N	ND (2.1) *	7.1	540	ND (1.1) *	ND (1.1) *	0.36	24	10	23	1.4	ND (0.1) *	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1) *	41	26
	02/05/16	14 - 15	N	ND (2.1) *	3	210	ND (1.1) *	ND (1.1) *	ND (0.21)	19	10	8.4	2.4	ND (0.1) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	33	39
	02/05/16	19 - 20	N	ND (2.1) *	3.9	460 J	ND (1) *	ND (1)	ND (0.21)	20	9.1	7.2	1.8	ND (0.11) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	34	38
	02/05/16	19 - 20	FD	ND (2.1) *	3.5	210 J	ND (1.1) *	ND (1.1) *	ND (0.21)	19	9.1	8.7	1.8	ND (0.1) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	34	38
AOC1-BCW8	02/04/16	0 - 0.5	N	ND (2.2) *	3.8	180	ND (1.1) *	ND (1.1) *	ND (0.22)	21	7.1	14	8.3	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	32	53
	02/04/16	2 - 3	N	ND (2) *	2.5	110	ND (1) *	ND (1)	0.44	28	9.3	10	4.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	37	45
	02/04/16	5 - 6	N	ND (2) *	1.4	82	ND (1) *	ND (1)	0.24	18	9.6	8.4	3.2	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	32	35
	02/04/16	9 - 10	N	ND (2.1) *	1.1	92	ND (1.1) *	ND (1.1) *	ND (0.21)	15 J	8	9.3	1.1	ND (0.11) *	ND (1.1)	10	ND (1.1) J	ND (1.1)	ND (2.1) *	32	35
	02/04/16	9 - 10	FD	ND (2.1) *	2.2	110	ND (1.1) *	ND (1.1) *	ND (0.21)	11 J	8.7	11	ND (1.1)	ND (0.11) *	ND (1.1)	9.5	ND (1.1)	ND (1.1)	ND (2.1) *	30	37
AOC1-BCW9	02/04/16	0 - 0.5	N	ND (2.2) *	4	200	ND (1.1) *	ND (1.1) *	ND (0.22)	35	8.3	17	9.3	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	33	61
	02/04/16	2 - 3	N	ND (2.2) *	3.5	190	ND (1.1) *	ND (1.1) *	1.2	66	8.1	16	11	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2) *	33	57
	02/04/16	5 - 6	N	ND (2.1) *	2.4	110	ND (1.1) *	ND (1.1) *	ND (0.21)	17	8.5	9.5	3	ND (0.1) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	37	37
	02/04/16	9 - 10	N	ND (2.1) *	2.4	100	ND (1.1) *	ND (1.1) *	ND (0.21)	13	7.9	10	ND (1.1)	ND (0.1) *	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.1) *	28	32

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC1-T1e	01/11/16	0 - 1	N	ND (2.1) *	2.7	37	ND (1) *	ND (1)	ND (0.21)	26	7.5	13	3.3	---	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	23	37
	01/11/16	2 - 3	N	ND (2.1) *	2.7	32	ND (1) *	ND (1)	ND (0.21)	18	9.8	10	2	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	30	40
	01/11/16	5 - 6	N	ND (2.1) *	1.9	22	ND (1) *	ND (1)	ND (0.21)	16	6.6	7.5	1.1	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	23	30
	01/11/16	9 - 10	N	ND (2.1) *	1.9	40	ND (1) *	ND (1)	ND (0.2)	20	8.1	11	1.3	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	27	32
	01/11/16	9 - 10	FD	ND (2.1) *	2.4	43	ND (1) *	ND (1)	ND (0.21)	17	8.1	13	1.5	0.18	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	27	32
	01/11/16	14 - 15	N	ND (2.2) *	2.1	42	ND (1.1) *	ND (1.1) *	ND (0.22)	17	6.8	11	1.3	0.16	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	24	28
AOC1-T1f	01/12/16	0 - 1	N	ND (2.1) *	2.5	73	ND (1) *	ND (1)	0.71	49	6.6	13	5.5	0.13	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	23	41
	01/12/16	2 - 3	N	ND (2.1) *	2.3	37	ND (1) *	ND (1)	ND (0.21)	20	7.6	7.2	1.5	0.13	ND (1)	19	ND (1)	ND (1)	ND (2.1) *	25	32
	01/12/16	5 - 6	N	ND (2.1) *	3.1	32	ND (1.1) *	ND (1.1) *	ND (0.21)	24	8.9	11	2	0.11	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1) *	27	40
	01/12/16	9 - 10	N	ND (2.1) *	2.7	72	ND (1) *	ND (1)	ND (0.21)	18 J	11 J	9.1	1.9	0.11	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	36 J	46 J
	01/12/16	9 - 10	FD	ND (2) *	3.1	71	ND (1) *	ND (1)	ND (0.21)	30 J	8.2 J	11	2.6	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	28 J	35 J
	01/12/16	14 - 15	N	ND (2) *	2.2	55	ND (1) *	ND (1)	0.68	29	7.6	9.2	2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	25	34
AOC1-T1g	02/17/17	0 - 0.5	N	ND (2) *	1.4	97	ND (1) *	1.4	ND (0.2)	26	8.2	12	4.1	ND (0.1) *	ND (1)	15	ND (1) J	ND (1) J	ND (2) J*	30	33
	02/17/17	0 - 0.5	FD	ND (2) *	ND (1)	100	ND (1) *	1.4	ND (0.2)	24	9.9	14	1.6	ND (0.1) *	ND (1)	15	ND (1) J	ND (1) J	ND (2) J*	31	36
	02/17/17	2 - 3	N	ND (2.1) *	ND (1)	80	ND (1) *	1.3	ND (0.21)	30	9.4	13	ND (1)	ND (0.1) *	ND (1)	17	ND (1) J	ND (1) J	ND (2.1) J*	31	32
	02/17/17	5 - 6	N	ND (2.1) *	ND (1)	81	ND (1) *	1.1	0.63	23	7.1	9.2	1.1	ND (0.1) *	ND (1)	9.9	ND (1) J	ND (1) J	ND (2.1) J*	27	30
	02/17/17	9 - 10	N	ND (2.1) *	ND (1)	69	ND (1) *	1.1	ND (0.21)	14	6.7	9.2	ND (1)	ND (0.1) *	ND (1)	8.8	ND (1) J	ND (1) J	ND (2.1) J*	26	29
AOC1-T2f	12/17/15	0 - 1	N	ND (2) *	7.6	96	ND (1) *	ND (1)	0.22	14	5.3	12	7.9	ND (0.1) *	3.2	11	ND (1)	ND (1)	ND (2) *	25	39
	12/17/15	2 - 3	N	ND (2) *	4.4	55	ND (1) *	ND (1)	0.25	17	7.5	11	3.1	ND (0.1) *	8.2	12	ND (1)	ND (1)	ND (2) *	37	40
AOC1-T2g	03/03/16	9 - 10	N	4.5	3.6	90	ND (1.1) *	ND (1.1) *	30	2,100	8	11	5.2	0.26	8.4	10	ND (1.1)	ND (1.1)	ND (2.2) *	26	140
	03/03/16	14 - 15	N	ND (2.1) *	2.3	52	ND (1.1) *	ND (1.1) *	0.77	28	8.6	8.9	2	0.16	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	33	75
	03/03/16	19 - 20	N	ND (2.1) *	1.8	43	ND (1.1) *	ND (1.1) *	0.58	27	8.7	9.2	2	0.16	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	30	53
	03/03/16	29 - 30	N	ND (2.1) *	2.1	50	ND (1.1) *	ND (1.1) *	0.25	21	10	9.9	2.1	0.15	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	36	50
	03/03/16	39 - 40	N	ND (2.1) *	2.2	94	ND (1.1) *	ND (1.1) *	0.23	19	8.9	9.2	1.8	0.14	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	36	39
	03/03/16	39 - 40	FD	ND (2.1) *	2	79	ND (1.1) *	ND (1.1) *	ND (0.21)	19	9	9.8	1.8	0.13	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	36	39
	03/03/16	49 - 50	N	ND (2.1) *	2.8	22	ND (1.1) *	ND (1.1) *	ND (0.21)	18	8.9	15	1.9	0.12	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	36	37
	03/03/16	59 - 60	N	ND (2.1) *	2.3	69	ND (1.1) *	ND (1.1) *	ND (0.21)	18	9.6	13	2.1	0.15	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	37	44
	03/03/16	69 - 70	N	ND (2.1) *	2.1	67	ND (1.1) *	ND (1.1) *	ND (0.21)	15	7.5	8.4	1.4	0.11	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	29	36
AOC1-T2h	03/04/16	0 - 1	N	ND (2.1) J*	1.4	120	ND (1) *	ND (1)	2.5	100 J	9	9.2 J	2.2	ND (0.1) *	ND (1)	17	ND (1) J	ND (1)	ND (2.1) *	32	39
	03/04/16	2 - 3	N	ND (2.1) *	2.1	72	ND (1.1) *	ND (1.1) *	0.42	24	11	9.9	2.2	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	34	45
	03/04/16	5 - 6	N	ND (2.1) *	ND (1)	130	ND (1) *	ND (1)	6.8	200	9.4	9.8	3.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	32	85
	03/04/16	9 - 10	N	ND (2.1) *	ND (1)	100	ND (1) *	ND (1)	0.94	28	8.7	16	1.4	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	31	44
	03/04/16	14 - 15	N	ND (2.1) *	1.7	42	ND (1) *	ND (1)	0.29	19	7.1	9	1.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	26	33
	03/04/16	19 - 20	N	ND (2.1) *	1.5	58	ND (1.1) *	ND (1.1) *	0.23	18	9.1	12	1.3	ND (0.1) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	31	41
	03/04/16	29 - 30	N	ND (2.1) *	1.9	40	ND (1) *	ND (1)	ND (0.21)	18	8.9	8.9	1.2	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	31	34
	03/04/16	39 - 40	N	ND (2.1) *	2.2	44	ND (1.1) *	ND (1.1) *	ND (0.21)	17	7.9	8	1.6	ND (0.1) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	30	35

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC1-T2i	03/05/16	0 - 1	N	ND (2.1) *	1.8	92	ND (1) *	ND (1)	0.61	28	7.8	10	2.6	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	31	36
	03/05/16	2 - 3	N	ND (2.1) *	1.3	89	ND (1) *	ND (1)	0.55	25	7.8	9.2	2.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	27	34
	03/05/16	5 - 6	N	ND (2.1) *	ND (1)	89	ND (1) *	ND (1)	0.29	16	7.8	10	3.5	0.12	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	27	40
	03/05/16	9 - 10	N	ND (2) *	1.2	110	ND (1) *	ND (1)	0.31	40	7.9	12	4.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	28	40
	03/05/16	14 - 15	N	ND (2.1) *	ND (1)	100	ND (1) *	ND (1)	0.28	17	9	9.5	1.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	35	38
	03/05/16	19 - 20	N	ND (2) *	1.2	130	ND (1) *	ND (1)	0.27	18	8.7	14	1.3	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	31	39
AOC1-T2j	03/05/16	0 - 1	N	ND (2.1) *	ND (1)	93	ND (1) *	ND (1)	0.6	31	11	8.8	1.9	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	48	40
	03/05/16	2 - 3	N	ND (2.1) *	ND (1)	80 J	ND (1) *	ND (1)	0.38	21	8.3 J	9.3	2.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	35	32
	03/05/16	2 - 3	FD	ND (2.1) *	ND (1)	65 J	ND (1) *	ND (1)	0.39	18	6.5 J	10	1.7	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2.1) *	29	29
	03/05/16	5 - 6	N	ND (2.1) *	1.7	64	ND (1) *	ND (1)	ND (0.21)	18	8.7	9.2	1.4	0.11	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	33	31
	03/05/16	9 - 10	N	ND (2.1) *	ND (1)	81	ND (1) *	ND (1)	0.37	16	7.4	6.4	1.3	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	41	33
	03/05/16	14 - 15	N	ND (2.1) *	1.5	64	ND (1.1) *	ND (1.1) *	0.26	26	10	12	2.1	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	42	44
	03/05/16	19 - 20	N	ND (2.1) *	1.6	53	ND (1.1) *	ND (1.1) *	0.7	22 J	9.8	8.8	1.7	ND (0.11) *	ND (1.1)	11 J	ND (1.1)	ND (1.1)	ND (2.1) *	39	46
	03/05/16	19 - 20	FD	ND (2.1) *	1.6	57	ND (1.1) *	ND (1.1) *	0.64	30 J	11	9.3	2	ND (0.11) *	ND (1.1)	14 J	ND (1.1)	ND (1.1)	ND (2.1) *	40	45
AOC1-T5D	01/12/16	0 - 1	N	ND (2) *	1.3	84	ND (1) *	ND (1)	ND (0.2)	23	7.5	8.3	6.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	26	33
	01/12/16	2 - 3	N	ND (2.1) *	5.3	230	ND (1.1) *	ND (1.1) *	2.7	120 J	6.6	17	18	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	28	100 J
	01/12/16	2 - 3	FD	ND (2.1) *	4.2	210	ND (1) *	ND (1)	2.6	69 J	6.4	14	16	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	25	72 J
	01/12/16	5 - 6	N	ND (2) *	2.3	120	ND (1) *	ND (1)	2.4	80	7.9	9.7	3.7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	42
	01/12/16	9 - 10	N	ND (2) *	1.9	97	ND (1) *	ND (1)	0.33	23	8.2	8.3	4.8	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	31	40
	01/12/16	14 - 15	N	ND (2) *	1.8	110	ND (1) *	ND (1)	0.92	36	7.3	8.8	4.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	27	36
	01/12/16	19 - 20	N	ND (2) *	ND (1)	120 J	ND (1) *	ND (1)	0.51	23	9.5	8.8	1.8	ND (0.099) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	33	48
	01/12/16	19 - 20	FD	ND (2.1) *	ND (1.1)	91 J	ND (1.1) *	ND (1.1) *	0.72	22	9.3	8.8	1.8	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	32	52
AOC1-T6D	02/09/16	0 - 0.5	N	ND (2) *	3.7	110 J	ND (1) *	ND (1)	ND (0.2) J	19	6.7	7.6	2.4	ND (0.1) *	ND (1)	9.9	ND (1)	ND (1)	2.4	28	100
	02/09/16	2 - 3	N	ND (2.1) *	2.6	96	ND (1) *	ND (1)	0.32 J	19	8.4	11	1.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	31	38
	02/09/16	5 - 6	N	ND (2.1) *	1.3	110	ND (1) *	ND (1)	0.24 J	19	9.1	11	1.7	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	2.3	33	43
	02/09/16	9 - 10	N	ND (2.1) *	3.4	39	ND (1) *	ND (1)	ND (0.21) J	16	7.6	8.8	1.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	2.6	27	35
	02/09/16	9 - 10	FD	ND (2.1) *	3.9	40	ND (1) *	ND (1)	ND (0.21) J	16	7.6	9.5	1.7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	2.1	29	36
	02/09/16	14 - 15	N	ND (2.1) *	3.1	72 J	ND (1) *	ND (1)	ND (0.21) J	16	8.3	8.3	1.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	2.4	31	36
	02/09/16	14 - 15	FD	ND (2) *	2	91 J	ND (1) *	ND (1)	ND (0.2) J	19	9.5	9.9	1.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	35	41
	02/09/16	19 - 20	N	ND (2) *	2.6	65	ND (1) *	ND (1)	ND (0.2) J	24	9.7	10	1.2	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	2.2	37	41
AOC1-T7	02/19/17	0 - 0.5	N	ND (2.1) *	1.1	84	ND (1.1) *	1.3	ND (0.21)	23	8.2	13	ND (1.1)	ND (0.1) *	ND (1.1)	13	ND (1.1) J	ND (1.1)	ND (2.1) J*	26	32
	02/19/17	2 - 3	N	ND (2) *	ND (1)	58	ND (1) *	1.1	0.33	27	6.4	8.9	1.1	ND (0.1) *	ND (1)	10	ND (1) J	ND (1)	ND (2) J*	24	35
	02/19/17	5 - 6	N	ND (2) *	ND (1)	72	ND (1) *	1.1	0.43	18	6.5	8.9	7.1	ND (0.1) *	ND (1)	8.5	ND (1) J	ND (1)	ND (2) J*	23	30
	02/19/17	9 - 10	N	ND (2.1) *	1.2	78	ND (1) *	1.3	ND (0.21)	17	7.3	10	ND (1)	ND (0.1) *	ND (1)	9.5	ND (1) J	ND (1)	ND (2.1) J*	27	30

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC1-T8	02/18/17	0 - 0.5	N	ND (2.1) *	ND (1)	57	ND (1) *	1.2	0.23	43	7.8	11	1.1	ND (0.1) *	ND (1)	16	ND (1) J	ND (1)	ND (2.1) J*	22	34
	02/18/17	2 - 3	N	ND (2.1) *	ND (1)	60	ND (1) *	1	ND (0.21)	18	6.1	17	1.1	ND (0.1) *	ND (1)	8.8	ND (1) J	ND (1)	ND (2.1) J*	20	28
	02/18/17	5 - 6	N	ND (2.1) *	1.5	47	ND (1.1) *	1.2	ND (0.21)	14	7.3	8.6	ND (1.1)	ND (0.11) *	ND (1.1)	9.9	ND (1.1) J	ND (1.1)	ND (2.1) J*	23	36
	02/18/17	9 - 10	N	ND (2.1) *	ND (1)	62	ND (1) *	1.1	0.22	13 J	6	10	ND (1)	ND (0.1) *	ND (1)	7.9 J	ND (1) J	ND (1)	ND (2.1) J*	20	31
	02/18/17	9 - 10	FD	ND (2) *	ND (1)	63	ND (1) *	1.1	ND (0.21)	17 J	6.8	9.2	ND (1)	ND (0.1) *	ND (1)	11 J	ND (1) J	ND (1)	ND (2) J*	21	27
AOC4-GB10	02/10/10	0 - 0.5	N	ND (2.2) *	ND (1.1)	160 J	ND (1.1) *	ND (1.1) *	ND (0.44)	35 J	8.5	16	14	ND (0.11) *	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.2) *	40 J	71 J
AOC4-GB11	02/10/10	0 - 0.5	N	ND (2.2) *	ND (1.1)	170	ND (1.1) *	ND (1.1) *	ND (0.43)	31	9.1	13	7.2 J	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2) *	38	46
	02/10/10	0 - 0.5	FD	ND (2.2) *	ND (1.1)	160	ND (1.1) *	ND (1.1) *	0.57	29	8.1	14	16 J	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.2) *	38	47
AOC4-GB12	02/10/10	0 - 0.5	N	ND (2.2) *	ND (1.1)	160	ND (1.1) *	ND (1.1) *	ND (0.44)	35	9.1	15	5.5	ND (0.11) *	ND (1.1)	24	ND (1.1)	ND (1.1)	ND (2.2) *	42	43
MW-10	06/27/97	1	N	---	---	---	---	---	ND (0.05)	14.2	---	14.1	---	---	---	8.8	---	---	---	---	20.9
	06/27/97	3	N	---	---	---	---	---	ND (0.05)	13.4	---	8.3	---	---	---	9	---	---	---	---	26.6
	06/27/97	6	N	---	---	---	---	---	ND (0.05)	19	---	8.4	---	---	---	10.7	---	---	---	---	23.3
	06/27/97	10	N	---	---	95.3	---	---	ND (0.05)	26.7	---	9.6	2.8	---	0.62	14.1	---	---	---	26.9	30.4
	06/27/97	20	N	---	---	---	---	---	ND (0.05)	14.7	---	7.7	---	---	---	10.2	---	---	---	---	27.1
	06/27/97	25	N	---	---	---	---	---	ND (0.05)	16.1	---	10.6	---	---	---	13.4	---	---	---	---	34.1
	06/27/97	30	N	---	---	---	---	---	ND (0.05)	13.8	---	9.4	---	---	---	11.5	---	---	---	---	31.5
	06/27/97	35	N	---	---	87	---	---	---	---	---	---	3.6	---	ND (0.2)	---	---	---	---	29.9	---
	06/27/97	40	N	---	---	---	---	---	ND (0.05)	14.5	---	9.2	---	---	---	12.6	---	---	---	---	29.4
	06/28/97	50	N	---	---	---	---	---	ND (0.05)	14.3	---	8.5	---	---	---	12.2	---	---	---	---	31.2
	06/27/97	60	N	---	---	---	---	---	ND (0.05)	9.1	---	6	---	---	---	6.6	---	---	---	---	16.3
	06/27/97	70	N	---	---	110	---	---	ND (0.05)	11.7	---	8.8	2.2	---	ND (0.2)	9.4	---	---	---	20.1	24.2
	06/27/97	75	N	---	---	---	---	---	ND (0.05)	11.5	---	6.4	---	---	---	8.2	---	---	---	---	24.9
	06/27/97	75	FD	---	---	---	---	---	0.1	9.6	---	6.97	---	---	---	8.1	---	---	---	---	21.6
	06/27/97	82	N	---	---	115	---	---	ND (0.05)	9.9	---	6.3	2.3	---	ND (0.2)	8.7	---	---	---	21.5	26.6
MW-11	06/29/97	1	N	---	---	---	---	---	ND (0.05)	12.2	---	7.5	---	---	---	8.4	---	---	---	---	24.8
	06/29/97	3	N	---	---	---	---	---	ND (0.05)	31.1	---	6.6	---	---	---	7.3	---	---	---	---	29.5
	06/29/97	6	N	---	---	---	---	---	ND (0.05)	26.9	---	5.3	---	---	---	5.6	---	---	---	---	23.2
	06/29/97	10	N	---	---	101	---	---	ND (0.05)	13.5	---	8.3	6.3	---	0.32	7.7	---	---	---	18.9	38.5
	06/29/97	20	N	---	---	---	---	---	ND (0.05)	5.9	---	6	---	---	---	4.9	---	---	---	---	19.9
	06/29/97	30	N	---	---	91.4	---	---	ND (0.05)	12.6	---	6.9	1.8	---	0.8	8.2	---	---	---	22	28.4
	06/29/97	40	N	---	---	---	---	---	ND (0.05)	9.8	---	9.8	---	---	---	8.6	---	---	---	---	28.4
	06/29/97	50	N	---	---	---	---	---	ND (0.05)	13.6	---	6.9	---	---	---	10.1	---	---	---	---	29.8
	06/29/97	60	N	---	---	27.4	---	---	ND (0.05)	9.6	---	5.8	3	---	0.088 J	8.3	---	---	---	18.1	26.2
	06/29/97	60	FD	---	---	---	---	---	ND (0.05)	10	---	5.74	---	---	---	8.6	---	---	---	---	19.8
	06/29/97	69	N	---	---	370	---	---	ND (0.05)	16.9	---	13.8	5	---	ND (0.2)	11.3	---	---	---	23.2	35.7

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
MW-13	07/09/97	10	N	---	---	---	---	---	ND (0.05)	10.8	---	9.3	---	---	---	8.1	---	---	---	---	27.2
	07/09/97	20	N	---	---	94.2	---	---	ND (0.05)	10.5	---	7.1	2.4	---	0.14 J	8.9	---	---	---	21.1	28.3
	07/09/97	25	N	---	---	124	---	---	---	---	---	---	2.8	---	ND (0.2)	---	---	---	---	26.4	---
	07/09/97	30	N	---	---	---	---	---	ND (0.05)	12.2	---	8.6	---	---	---	8.2	---	---	---	---	33.3
	07/09/97	40	N	---	---	---	---	---	ND (0.05)	10.7	---	8.1	---	---	---	9.4	---	---	---	---	30.4
	07/09/97	40	FD	---	---	---	---	---	ND (0.05)	6.4	---	5.6	---	---	---	5.6	---	---	---	---	17.7
Old Well-BCW-1	09/11/13	7 - 8	N	ND (2.2) J*	4.8	130	ND (1.1) J*	ND (1.1) J*	80	4,200	7	14	12 J	ND (0.11) *	18	11	2.1	ND (1.1) J	ND (2.2) *	37 J	190
Old Well-BCW-2	09/11/13	4 - 5	N	ND (2.1) *	19	130	ND (1) *	ND (1)	73	4,400	7.2	23	10	ND (0.11) *	6.7	12	ND (1)	ND (1)	ND (2.1) *	61	150
PA-01	11/09/15	0 - 1	N	ND (2) J*	3.4	85 J	ND (1) *	ND (1)	0.65	20	3.7	8.5	9.3	ND (0.1) *	ND (1)	6.9	ND (1)	ND (1)	ND (2) *	18	80
PA-03	11/09/15	0 - 1	N	ND (2) *	3.8	140	ND (1) *	ND (1)	0.65	26	7.1	15	13	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	25	200
PA-04	11/09/15	0 - 1	N	ND (2) *	3.9	170	ND (1) *	ND (1)	0.69	36	7.1	14	25	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	33	56
PA-14	01/27/16	0 - 1	N	ND (2.1) *	4.5	180	ND (1) *	ND (1)	ND (0.21)	20	5.5	22	10	ND (0.1) *	ND (1)	8.7	ND (1)	ND (1)	ND (2.1) *	23	270
PA-15	01/27/16	0 - 1	N	ND (2.1) *	4.7	120	ND (1) *	ND (1)	1.1	170	6.6	26	20	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	25	120
PA-16	01/27/16	0 - 1	N	ND (2.1) *	4.1	150	ND (1) *	ND (1)	1.3	47	6.4	26	8.5	ND (0.1) *	1.2	35	ND (1)	ND (1)	ND (2.1) *	25	64
SD-14	01/11/16	0 - 1	N	ND (2.1) *	3.7	87	ND (1) *	ND (1)	0.72	29	5.6	14	13	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	20	37
	01/11/16	2 - 3	N	ND (2.1) *	2.6	94	ND (1) *	ND (1)	0.63	32	5	7.6	16	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2.1) *	19	47
	01/11/16	5 - 6	N	ND (2.3) *	6.7	140	ND (1.1) *	ND (1.1) *	3.1	42	4.5	64	120	ND (0.11) *	5	11	ND (1.1)	ND (1.1)	ND (2.3) *	18	660
	01/11/16	9 - 10	N	ND (2.1) *	1.6	64	ND (1) *	ND (1)	1.1	35	7.6	7.8	1.9	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	28	36
SD-15	01/12/16	0 - 0.5	N	ND (2.1) *	1.8	220	ND (1.1) *	ND (1.1) *	0.77	19	6.3	13	2.7	ND (0.11) *	ND (1.1)	9.6	ND (1.1)	ND (1.1)	ND (2.1) *	24	32
	01/12/16	2 - 3	N	ND (2.1) *	2.1	36	ND (1.1) *	ND (1.1) *	ND (0.21)	25	7.7	12	1.8	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	27	32
	01/12/16	5 - 6	N	ND (2.1) *	1.6	72	ND (1.1) *	ND (1.1) *	ND (0.21)	21	7.2	11	1.5	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	28	32
	01/12/16	9 - 10	N	ND (2.1) *	2	49	ND (1.1) *	ND (1.1) *	ND (0.21)	20	9.4	9.3	2.1	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	35	37
SD-16	01/12/16	0 - 0.5	N	ND (2.1) *	1.3	100	ND (1.1) *	ND (1.1) *	ND (0.21)	16	7.3	10	1.8	ND (0.1) *	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.1) *	28	32
	01/12/16	2 - 3	N	ND (2.1) *	1.9	230	ND (1.1) *	ND (1.1) *	ND (0.21)	19	7.6	11	2.2	ND (0.1) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	34	28
	01/12/16	5 - 6	N	ND (2.1) *	2.3	46	ND (1) *	ND (1)	ND (0.21)	24	10	9.3	2.4	ND (0.11) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	37	40
	01/12/16	9 - 10	N	ND (2.1) *	1.4	69	ND (1) *	ND (1)	ND (0.21)	13	9.4	6.1	1.9	ND (0.1) *	ND (1)	9.3	ND (1)	ND (1)	ND (2.1) *	28	33
SD-17	12/17/15	0 - 0.5	N	ND (2.1) *	5.1	190	ND (1) *	ND (1)	ND (0.2)	17	6.6	15	15	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	27	60
	12/17/15	2 - 3	N	ND (2) *	5.5	180	ND (1) *	ND (1)	0.25	18	7.6	16	19	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	30	65
SD-18	12/17/15	0 - 0.5	N	ND (2.1) *	2.9	63	ND (1.1) *	ND (1.1) *	ND (0.21)	32	11	17	3.4	ND (0.11) *	ND (1.1)	22	ND (1.1)	ND (1.1)	ND (2.1) *	41	310
SD-19	01/13/16	0 - 0.5	N	ND (2.1) *	2.3	150 J	ND (1) *	ND (1)	ND (0.21)	30	9.8	15 J	2	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2.1) *	31	33
	01/13/16	0 - 0.5	FD	ND (2.1) *	2.3	120 J	ND (1) *	ND (1)	ND (0.21)	28	9.8	11 J	2.1	ND (0.11) *	1.3	22	ND (1)	ND (1)	ND (2.1) *	31	33
	01/13/16	2 - 3	N	ND (2) *	2.8	150	ND (1) *	ND (1)	ND (0.2)	24	8.3	10	2.8	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	32	33
	01/13/16	5 - 6	N	ND (2) *	1.2	75	ND (1) *	ND (1)	ND (0.2)	14	6.6	7.9	1.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	23	30
	01/13/16	8 - 8.5	N	ND (2) *	1.9	94	ND (1) *	ND (1)	ND (0.2)	15	6.5	7.8	1.8	0.12	ND (1)	11	ND (1)	ND (1)	ND (2) *	24	35
SD-25	03/10/16	0 - 1	N	ND (2.1) *	2.2	89	ND (1) *	ND (1)	ND (0.21)	23	8.6	15	3.1	0.1	ND (1)	20	ND (1)	ND (1)	ND (2.1) *	32	39
SD-26	03/10/16	0 - 1	N	ND (2) *	4.8	130	ND (1) *	1.1	0.32	24	5.6	21	16	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	22	220
SD-OS33	12/20/16	1.5 - 2	N	ND (2.1) J*	4.7	120	ND (1) *	ND (1)	0.36	29	8	12	5.2	ND (0.1) *	ND (1)	15	ND (1) J	ND (1)	ND (2.1) *	34	47

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
TCS-4	03/25/14	59 - 60	N	ND (2) J*	2.1	80	ND (1) *	ND (1) J	2.2	61 J	6.3	18 J	32 J	ND (0.1) *	ND (1)	16 J	1.6	ND (1) J	ND (2) J*	29	30
	03/25/14	113	N	ND (2) *	20	51	ND (1) *	ND (1)	ND (0.4)	1,700	31	580	17	ND (0.1) *	35	300	42	ND (1)	ND (2) *	5.7	55
TCS4-E	03/01/16	4 - 5	N	8.3 J	19 J	140	ND (1) J*	ND (1)	29 J	3,100	6.5	16 J	6.2	ND (0.1) *	9.6 J	10 J	ND (1) J	ND (1)	ND (2.1) J*	67 J	190 J
	03/01/16	4 - 5	FD	16 J	18 J	120	ND (1.1) J*	ND (1.1) *	50 J	3,400	5.9	12 J	5	ND (0.11) *	9.1 J	7.1 J	ND (1.1) J	ND (1.1)	ND (2.1) J*	60 J	120 J
	03/01/16	5 - 6	N	ND (2.1) *	ND (1)	58	ND (1) *	ND (1)	0.99	13	8	8	ND (1)	ND (0.1) *	ND (1)	7.6	ND (1)	ND (1)	ND (2.1) *	32	31
TCS4-N	03/01/16	4 - 5	N	8.6	14	100	ND (1.1) *	ND (1.1) *	33	3,400	6.9	8.7	6.9	ND (0.1) *	4.9	13	ND (1.1)	ND (1.1)	ND (2.1) *	70	82
	03/01/16	5 - 6	N	6.9	3.8	130	ND (1.1) *	ND (1.1) *	39	3,300	7.5	14	6.2	ND (0.11) *	15	12	ND (1.1)	ND (1.1)	ND (2.2) *	33	130
TCS4-S	03/01/16	4 - 5	N	ND (2.1) *	1.9	74	ND (1.1) *	ND (1.1) *	30	840	7.4	9	4.5	ND (0.11) *	ND (1.1)	9.5	ND (1.1)	ND (1.1)	ND (2.1) *	33	120
	03/01/16	5 - 6	N	5	2.7	100	ND (1.1) *	ND (1.1) *	21	2,200	7.3	11	3.1	ND (0.11) *	3.4	9	ND (1.1)	ND (1.1)	ND (2.2) *	30	150
SS-1	06/29/97 ‡	0.5	N	---	---	---	---	---	ND (0.05)	38.2	---	16.5	---	---	---	17.9	---	---	---	---	55
	06/29/97 ‡	1.5	N	---	---	---	---	---	ND (0.05)	25.3	---	13.6	---	---	---	12.5	---	---	---	---	43.4
SS-2	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	18.9	---	14.1	---	---	---	13.2	---	---	---	---	48.3
	06/29/97	1.5	N	---	---	---	---	---	ND (0.05)	10.2	---	12.9	---	---	---	9.4	---	---	---	---	42.2
SS-3	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---	---	---	---	---
SS-4	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---	---	---	---	---
SS-5	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---	---	---	---	---
SS-6	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---	---	---	---	---
SS-7	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---	---	---	---	---
SS-8	06/29/97	0.5	N	---	---	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---	---	---	---	---
SSB-1	06/25/97	1	N	---	---	---	---	---	ND (0.05)	13.7	---	14.9	---	---	---	11.6	---	---	---	---	35.7
	06/25/97	3	N	---	---	---	---	---	ND (0.05)	13.6	---	11	---	---	---	12	---	---	---	---	29.6
	06/25/97	6	N	---	---	---	---	---	ND (0.05)	16.7	---	16.9	---	---	---	12.2	---	---	---	---	34.5
	06/25/97	10	N	---	---	97.3	---	---	ND (0.05)	16.5	---	8.2	1.3	---	ND (0.2)	12.9	---	---	---	24.6	31.9
SSB-6	06/30/97	1	N	---	---	---	---	---	ND (0.05)	13.7	---	8.6	---	---	---	8.9	---	---	---	---	29.1
	06/30/97	3	N	---	---	---	---	---	ND (0.05)	27.5	---	6.6	---	---	---	8.2	---	---	---	---	24.8
	06/30/97	6	N	---	---	---	---	---	0.06	467	---	33.8	---	---	---	5.5	---	---	---	---	132
	06/30/97	10	N	---	---	100	---	---	ND (0.05)	14.8	---	9.6	3.1	---	0.79	10.3	---	---	---	22.7	33.4
SSB-7	06/30/97	1	N	---	---	---	---	---	ND (0.05)	19.8	---	7.7	---	---	---	8.4	---	---	---	---	28.1
	06/30/97	3	N	---	---	---	---	---	ND (0.05)	24.9	---	6.5	---	---	---	7	---	---	---	---	29.4
	06/30/97	6	N	---	---	---	---	---	ND (0.05)	8.6	---	14.7	---	---	---	6.3	---	---	---	---	23
	06/30/97	10	N	---	---	77.5	---	---	ND (0.05)	8.1	---	5.8	1.8	---	ND (0.2)	6.5	---	---	---	16.2	23.4
SSB-8	07/10/97	1	N	---	---	---	---	---	ND (0.05)	53.1	---	15.1	---	---	---	15.3	---	---	---	---	38.3
	07/10/97	3	N	---	---	---	---	---	ND (0.05)	13.6	---	14.1	---	---	---	10.6	---	---	---	---	35.3
	07/10/97	6	N	---	---	---	---	---	ND (0.05)	15.3	---	7.3	---	---	---	10	---	---	---	---	33.5
	07/10/97	10	N	---	---	43.9	---	---	ND (0.05)	17.1	---	10.7	2.8	---	0.071 J	13.9	---	---	---	26.8	35.8
	07/10/97	10	FD	---	---	---	---	---	ND (0.05)	13.7	---	8	---	---	---	11.1	---	---	---	---	30

TABLE 3-2b

Sample Results: Metals in Soil
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
SSB-9	07/10/97	1	N	---	---	---	---	---	ND (0.05)	17.3	---	8.6	---	---	---	10.1	---	---	---	---	35.5
	07/10/97	3	N	---	---	---	---	---	ND (0.05)	11	---	6.1	---	---	---	7	---	---	---	---	31.8
	07/10/97	6	N	---	---	---	---	---	ND (0.05)	9.6	---	6.4	---	---	---	7.8	---	---	---	---	25.3
	07/10/97	10	N	---	---	102	---	---	ND (0.05)	15.7	---	7.7	3	---	0.096 J	11.4	---	---	---	25.7	33.1
XMW-9	06/25/97	3	N	---	---	---	---	---	ND (0.05)	18.4	---	12	---	---	---	9	---	---	---	---	25.8
	06/25/97	10	N	---	---	257	---	---	ND (0.05)	45.7	---	19.7	5.7	---	0.075 J	35.2	---	---	---	44.5	44.2
	06/25/97	10	FD	---	---	---	---	---	ND (0.05)	31.1	---	16.7	---	---	---	27	---	---	---	---	38.7
	06/25/97	30	N	---	---	88.1	---	---	ND (0.05)	35.6	---	17.2	7.2	---	0.11 J	32.1	---	---	---	42.9	50.3
	06/25/97	50	N	---	---	57.4	---	---	ND (0.05)	36.3	---	15.6	4.5	---	ND (0.2)	28.5	---	---	---	37.7	54.2
	06/25/97	70	N	---	---	1,580	---	---	ND (0.05)	6.7	---	170	6.1	---	1.8	7.4	---	---	---	19.7	54.6
Category 2																					
Spill04162006_Sampl	04/26/06	0	N	5	2.3	140	0.5	0.5	---	35	5.3	10	18	0.14	2.7	15	1	0.5	5	24	78
Spill04162006_Sampl	04/26/06	0	N	10	4.6	210	1	1	---	20	7	11	6.2	0.16	5	15	1	1	10	34	42
Category 3																					
DS-1	06/24/88	1 - 3	N	---	---	---	---	---	6.8	80	---	---	---	---	---	---	---	---	---	---	---
DS-2	06/24/88	0 - 3	N	---	---	---	---	---	0.7	43	---	---	---	---	---	---	---	---	---	---	---
DS-3	06/24/88	0 - 3	N	---	---	---	---	---	ND (0.5)	25	---	---	---	---	---	---	---	---	---	---	---
DS-4	06/24/88	0 - 3	N	---	---	---	---	---	ND (0.5)	28	---	---	---	---	---	---	---	---	---	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ǂ	This location is in an area where soil is transitioning into sediment.
Δ	sediment sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-2c

Sample Results: Contract Laboratory Program Inorganics
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)									
			Interim Screening Level[1] :	16,400	66,500	29,303	NE	12,100	402	NE	4,400	2,070	0.9
			Residential Regional Screening Levels[2] :	77,000	NE	55,000	NE	NE	1,800	NE	NE	NE	23
			Residential DTSC-SL[3] :	NE	NE	NE	NE	NE	1,800	NE	NE	NE	NE
			Ecological Comparison Values[4] :	NE	NE	NE	NE	NE	220	NE	NE	NE	0.9
			Background[5] :	16,400	66,500	29,303	NE	12,100	402	NE	4,400	2,070	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Iron (2+)**	**Magnesium**	**Manganese**	**Manganese Extractable**	**Potassium**	**Sodium**	**Cyanide**
Category 1													
AOC1-BCW1	09/20/08	0 - 0.5	N	8,100	21,000	14,000	---	6,400	260	---	2,800	300	ND (1) *
AOC1-BCW5	10/04/08	0 - 0.5	N	9,500	20,000	18,000	---	7,700	300	---	3,900	ND (360)	ND (1.01) *
AOC1-BCW6	08/22/08 ‡	0 - 0.5	N	14,000	35,000	20,000	---	11,000	420	---	4,000	660	ND (6.69) *
AOC1-T1a	10/16/08	0 - 0.5	N	9,800	30,000	17,000	---	8,100	270	---	2,600	260	ND (1.02) *
AOC1-T1b	10/16/08	0 - 0.5	N	7,700	16,000	19,000	---	6,000	230	---	2,300	250	ND (1.01) *
	10/16/08	0 - 0.5	FD	8,100	15,000	19,000	---	6,500	240	---	2,500	250	ND (1.01) *
AOC1-T1c	10/16/08	0 - 0.5	N	9,100	22,000	16,000	---	6,600	250	---	3,800	340	ND (1.02) *
AOC1-T2b	10/16/08	0 - 0.5	N	8,900	24,000	19,000	---	7,800	280	---	3,000 J	310	ND (1.02) *
AOC1-T3a	10/05/08	0 - 0.5	N	11,000	24,000	18,000	---	7,700	290	---	2,900	ND (250)	ND (1.01) *
AOC1-T4c	10/04/08	0 - 0.5	N	5,700	18,000	16,000	---	5,300	200	---	1,700	ND (240)	ND (1.01) *
AOC1-T5b	10/04/08	0 - 0.5	N	6,500	15,000	16,000	---	5,600	210	---	1,800	ND (210)	ND (1) *
AOC1-T6c	09/30/08	0 - 0.5	N	6,300	14,000	15,000	---	5,300	200	---	1,600	210	ND (1) *
AOC4-1	10/14/08	0 - 0.5	N	8,400	21,000	20,000	---	7,900	310	---	2,500 J	270	ND (1.01) *
AOC16-5	02/20/17	0 - 0.5	N	6,900	19,000	15,000 J	---	5,400	210	---	2,100	2,700	ND (0.21)
AOC1-7	01/09/17	0 - 0.5	N	6,500	9,100	29,000	---	4,700	180 J	---	1,300	150	---
AOC1-8	01/05/17	0 - 0.5	N	7,600	18,000	15,000	---	5,700	210	---	2,800	180	---
AOC1-T7	02/19/17	0 - 0.5	N	8,200	26,000	19,000	---	6,500	250	---	2,000	140	ND (0.214)
MW-10	06/27/97	10	N	---	---	15,300	ND (100)	---	231	78.4	---	---	---
	06/27/97	35	N	---	---	15,300	ND (100)	---	226	19.4	---	---	---
	06/27/97	70	N	---	---	10,400	ND (100)	---	284	224	---	---	---
	06/27/97	82	N	---	---	11,000	ND (100)	---	312	151	---	---	---

TABLE 3-2c

Sample Results: Contract Laboratory Program Inorganics
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)									
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**NE**	**12,100**	**402**	**NE**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**NE**	**12,100**	**402**	**NE**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Iron (2+)**	**Magnesium**	**Manganese**	**Manganese Extractable**	**Potassium**	**Sodium**	**Cyanide**
MW-11	06/29/97	10	N	---	---	11,300	ND (100)	---	201	70.2	---	---	---
	06/29/97	30	N	---	---	12,900	ND (100)	---	201	60	---	---	---
	06/29/97	60	N	---	---	10,100	ND (100)	---	138	15.6	---	---	---
	06/29/97	69	N	---	---	14,900	ND (100)	---	276	31.4	---	---	---
MW-13	07/09/97	20	N	---	---	12,200	ND (100)	---	218	102.8	---	---	---
	07/09/97	25	N	---	---	15,400	ND (100)	---	270	86.37	---	---	---
SD-14	01/11/16	0 - 1	N	5,800	18,000	12,000	---	4,800	190	---	1,400	250	ND (0.208) J
	01/11/16	2 - 3	N	6,600	17,000	14,000	---	4,900	220	---	1,700	320	ND (0.208) J
	01/11/16	5 - 6	N	9,000	67,000	18,000	---	4,500	220	---	1,900	610	ND (0.224) J
	01/11/16	9 - 10	N	9,500	33,000	18,000	---	6,800	230	---	2,100	440	ND (0.211) J
SD-15	01/12/16	0 - 0.5	N	8,600	48,000	15,000	---	5,400	250	---	1,800	390	ND (0.216)
	01/12/16	2 - 3	N	9,900	26,000	17,000	---	7,000	210	---	1,800	430	ND (0.217)
	01/12/16	5 - 6	N	9,600	59,000	17,000	---	6,800	260	---	1,900	460	ND (0.215)
	01/12/16	9 - 10	N	11,000	17,000	21,000	---	7,800	230	---	2,300	630	ND (0.214)
SD-16	01/12/16	0 - 0.5	N	8,100	14,000	18,000	---	5,900	240	---	2,600	200	ND (0.21)
	01/12/16	2 - 3	N	9,000	56,000	16,000	---	6,500	720	---	2,800	540	ND (0.211)
	01/12/16	5 - 6	N	12,000	6,000	22,000	---	8,600	250	---	2,100	740	ND (0.211)
	01/12/16	9 - 10	N	9,500	45,000	16,000	---	6,500	280	---	2,500	550	ND (0.208)
SED-10	02/17/03 $^{\Delta}$	2	N	---	---	5,610	---	---	122	---	---	---	---
SED-12	02/17/03 $^{\Delta}$	2	N	---	---	18,400	---	---	353	---	---	---	---
SED-27	02/19/03 $^{\Delta}$	2	N	---	---	7,270	---	---	202 B	---	---	---	---
SED-28	02/19/03 $^{\Delta}$	2	N	---	---	3,510	---	---	92.1 B	---	---	---	---
SED-29	02/19/03 $^{\Delta}$	2	N	---	---	4,630	---	---	113 B	---	---	---	---
SED-8	02/17/03 $^{\Delta}$	2	N	---	---	6,660	---	---	127	---	---	---	---

TABLE 3-2c

Sample Results: Contract Laboratory Program Inorganics
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)									
			Interim Screening Level[1] :	16,400	66,500	29,303	NE	12,100	402	NE	4,400	2,070	0.9
			Residential Regional Screening Levels[2] :	77,000	NE	55,000	NE	NE	1,800	NE	NE	NE	23
			Residential DTSC-SL[3] :	NE	NE	NE	NE	NE	1,800	NE	NE	NE	NE
			Ecological Comparison Values[4] :	NE	NE	NE	NE	NE	220	NE	NE	NE	0.9
			Background[5] :	16,400	66,500	29,303	NE	12,100	402	NE	4,400	2,070	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Iron (2+)**	**Magnesium**	**Manganese**	**Manganese Extractable**	**Potassium**	**Sodium**	**Cyanide**
SED-9	02/17/03 Δ	2	N	---	---	19,600	---	---	224	---	---	---	---
SSB-1	06/25/97	10	N	---	---	15,300	ND (100)	---	248	63.2	---	---	---
SSB-6	06/30/97	10	N	---	---	14,700	ND (100)	---	273	94.3	---	---	---
SSB-7	06/30/97	10	N	---	---	10,100	ND (100)	---	186	89.6	---	---	---
SSB-8	07/10/97	10	N	---	---	15,600	ND (100)	---	270	57.2	---	---	---
SSB-9	07/10/97	10	N	---	---	14,200	ND (100)	---	205	39.5	---	---	---
XMW-9	06/25/97	10	N	---	---	22,600	ND (100)	---	345	51.3	---	---	---
	06/25/97	30	N	---	---	22,200	ND (100)	---	344	45.7	---	---	---
	06/25/97	50	N	---	---	19,700	ND (100)	---	280	29.5	---	---	---
	06/25/97	70	N	---	---	22,000	ND (100)	---	203	76.4	---	---	---

TABLE 3-2c

Sample Results: Contract Laboratory Program Inorganics
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ǂ	This location is in an area where soil is transitioning into sediment.
Δ	sediment sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-2d
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
Category 1																								
AOC1-BCW1	09/20/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.5	11	9.4	10	10	12	ND (5)	17	ND (5)	7.8	ND (5)	6.2	15	6.2	100.7	16
	09/20/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC1-BCW2	10/04/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.9 J	10 J	9.7 J	7.7 J	11 J	10 J	ND (5.1)	19 J	ND (5.1)	7.3 J	ND (5.1)	6.2 J	16 J	6.2	98.6	15
	10/04/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8	ND (5)	ND (5)	ND (5)	ND (5)	6.4	ND	14.4	5.8
	10/04/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.9)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC1-BCW3	10/04/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	22	20	24	17	27	29	5.9	34	ND (5.1)	14	ND (5.1)	14	30	14	222.9	32
	10/04/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/04/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.7)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/04/08	9 - 10	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.9)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC1-BCW4	10/04/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	18	27	16	16	22	6.1	31	ND (5.1)	14	ND (5.1)	11	27	11	189.1	30
	10/04/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/04/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/04/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.4)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC1-BCW5	10/04/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.7	7.9	ND (5.1)	5.5	ND (5.1)	8.1	ND (5.1)	9.3	ND (5.1)	5.1	ND (5.1)	ND (5.1)	9.3	ND	50.9	12
	10/04/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/04/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/04/08	9 - 10	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC1-BCW6	08/22/08 ‡	0 - 0.5	N	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	11	ND (7.1)	ND (7.1)	7.3	ND (7.1)	10	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	10	ND	38.3	9
	08/22/08 ‡	2 - 3	N	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	10	ND (7.2)	ND (7.2)	7.7	ND (7.2)	19	ND (7.2)	ND (7.2)	ND (6.4)	10	15	10	51.7	9
AOC1-T1a	10/16/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T1b	10/16/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.9)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/16/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	9 - 10	N	ND (5)	5.2	ND (5)	ND (5)	9.7	8.1	ND (5)	ND (5)	ND (5)	ND (5)	7.8	ND (5)	28	7.9	ND (5)	ND (4.8)	75	26	97.8	69.9	6.3

TABLE 3-2d
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC1-T1c	10/16/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	24	26	26	23	31	32	9.1	48	ND (5.1)	21	ND (5.1)	20	42	20	282.1	43
	10/16/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.1	7.7	8	6.1	10	9.7	ND (5.2)	16	ND (5.2)	ND (5.2)	ND (5.2)	6.4	14	6.4	79.6	12
	10/16/08	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.4	8.3	12	6.3	8.1	12	ND (5.2)	21	ND (5.2)	5.6	ND (5)	7.1	17	7.1	99.7	14
	10/16/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6	7.3	7.8	7.5	10	9.6	ND (5.1)	11	ND (5.1)	6.4	ND (4.1)	ND (5.1)	10	ND	75.6	12
	10/16/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-T2a	10/05/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.8	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	5.8	5.8
	10/16/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/16/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-T2b	10/16/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/16/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/16/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/16/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/16/08	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-T2c	10/08/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	22	20	28	16	17	25	ND (5)	41	ND (5)	14	ND (5)	7.9	40	7.9	223	29
	10/08/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.5	8	9.5	7.5	6.3	8.1	ND (5.1)	15	ND (5.1)	6.3	ND (5)	5.4	13	5.4	80.2	13
	10/08/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/08/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-T2d	10/07/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/07/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9	5.7	7.2	ND (5.2)	7.3	9.5	ND (5.2)	18	ND (5.2)	ND (5.2)	ND (4.2)	5.4	16	5.4	72.7	10
	10/07/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.9)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/07/08	29 - 30	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/07/08	29 - 30	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/07/08	39 - 40	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/07/08	49 - 50	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.9)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	10/08/08	59 - 60	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/08/08	69 - 70	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.5)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC1-T2e	10/16/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/16/08	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/16/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/16/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

TABLE 3-2d
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
AOC1-T3a	10/05/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.5	8.4	11	7.6	12	14	ND (5)	25	ND (5)	7	ND (5)	9.2	21	9.2	112.5	13
	10/17/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/17/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/17/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T3b	10/05/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/17/08	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	15	16	14	13	21	20	ND (5.3)	25	ND (5.3)	12	ND (5.3)	6.8	23	6.8	159	23
	10/17/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/17/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/17/08	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T3c	10/05/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.9	7.9	7.4	8.6	11	ND (5.1)	14	ND (5.1)	5.3	ND (5.1)	ND (5.1)	12	ND	72.1	10
	10/05/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/05/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.3	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND	12.1	5.9
	10/05/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T4a	10/03/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.1	ND (5)	ND (5)	ND (5)	ND (5)	6.8	ND	13.9	5.8
	10/03/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T4b	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.4	6.2
	10/02/08	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/02/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-T4c	10/04/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.4	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	5.4	5.8
	10/04/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	59	55	69	38	41	64	11	82	ND (5.1)	34	ND (5.1)	16	82	16	535	83
	10/04/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	32	380	170	410	81	190	400	37	560	ND (5.1)	78	ND (5.1)	150	560	182	2,866	300
	10/04/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.4	58	34	32	19	40	72	6.3	84	ND (5.1)	17	ND (5.1)	20	81	26.4	443.3	51
AOC1-T5a	10/04/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/04/08	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T5b	10/04/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/04/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
	10/04/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/04/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-2d

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC1-T5c	10/04/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.4	6.6	5.7	7.7	7.3	ND (5)	8.8	ND (5)	ND (5)	ND (5)	ND (5)	8	ND	49.5	9.1
	10/04/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.1	8.3	7.6	6.6	11	9.7	ND (5)	14	ND (5)	6.1	ND (5)	ND (5)	13	ND	82.4	13
	10/04/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	16	84	45	58	25	58	91	8.8	220	ND (5)	26	ND (5)	62	150	78	765.8	71
	10/04/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T6a	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.4	6.3	10	8.8	6.1	9.2	ND (5)	10	ND (5)	5.6	ND (5)	ND (5)	10	ND	71.4	11
	09/30/08	2.5 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	2.5 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	5.5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	9.5 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T6b	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.7	6	ND (5)	5.2	ND (5)	5.9	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	22.8	6.1
	09/30/08	2.5 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	5.5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	9.5 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	9.5 - 10	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC1-T6c	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.5	ND (5)	6.1	ND (5)	5.6	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	17.2	5.8
	09/30/08	2.5 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	5.5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-1	10/14/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	11	37	12	18	28	ND (5)	37	ND (5)	12	ND (5)	10	24	10	193	20
	10/14/08	0.5 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/14/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-1	01/23/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	9.3	6.7
	01/23/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/23/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/23/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/23/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/23/16	14 - 15	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/24/16	19 - 20	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/24/16	29 - 30	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-2d

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC1-3	01/25/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/25/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/25/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/25/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/25/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/25/16	14 - 15	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/25/16	19 - 20	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/25/16	29 - 30	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/25/16	39 - 40	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	01/25/16	49 - 50	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/25/16	59 - 60	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/26/16	69 - 70	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/26/16	79 - 80	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-4	01/23/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.9	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	9.9	6.6
	01/23/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/23/16	5 - 6	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND	ND	ND (58)
	01/23/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/23/16	14 - 15	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/23/16	19 - 20	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/23/16	19 - 20	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/23/16	29 - 30	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC16-5	02/20/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	72 J	52 J	110 J	31	22	57 J	ND (5.2)	110 J	ND (5.2)	29	ND (5.2)	29 J	94 J	29	577	76
	02/20/17	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	16 J	13 J	28 J	11	7.9	15 J	ND (5.2)	25 J	ND (5.2)	9	ND (5.2)	5.9 J	23 J	5.9	147.9	21
	02/20/17	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-7	01/09/17	0 - 0.5	N	---	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340) *	ND (340)	ND (340) J	ND (340)	ND (340)	ND (340) J*	ND (340)	ND (340)	ND (340) J	ND (6.3)	ND (340)	ND (340)	ND	ND	ND (390) *
AOC1-8	01/05/17	0 - 0.5	N	---	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350) *	ND (350)	ND (350)	ND (350)	ND (350)	ND (350) *	ND (350)	ND (350)	ND (350)	ND (6.7)	ND (350)	ND (350)	ND	ND	ND (400) *
AOC1-BCW13	02/04/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.1 J	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	7.1	6.1
	02/04/16	2 - 3	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
	02/04/16	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
	02/04/16	9 - 10	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
AOC1-BCW24	02/05/16	0 - 0.5	N	6 R	6 R	6 R	6 R	6 R	7.2 J	8 J	17 J	6 R	7.6 J	11 J	6 R	21 J	6 R	6 R	6 R	10 J	16 J	10	87.8	14 JR
	02/05/16	2 - 3	N	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	ND	ND	6.1 R
AOC1-BCW25	02/05/16	0 - 0.5	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (65)	ND (65)	ND (65)	ND (65)	10	ND (65)	16	ND (6.5)	ND (65)	ND (6.5)	7.8	14	7.8	40	72
	02/05/16	2 - 3	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
	02/05/16	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	02/05/16	9 - 10	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)

TABLE 3-2d

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC1-BCW26	02/04/16	0 - 0.5	N	5.6 R	5.6 R	5.6 R	5.6 R	5.6 R	9.8 J	14 J	31 J	5.6 R	13 J	16 J	5.6 R	26 J	5.6 R	5.6 R	5.6 R	12 J	23 J	12	132.8	21 JR
	02/04/16	2 - 3	N	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	6.2 R	ND	ND	7.2 R
AOC1-BCW7	02/05/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/05/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/05/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/05/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/05/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	02/05/16	14 - 15	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/05/16	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	02/05/16	19 - 20	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC1-T1e	01/11/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/11/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/11/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/11/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/11/16	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/11/16	14 - 15	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC1-T1f	01/12/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/12/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/12/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND	10.5	5.9
AOC1-T2g	03/03/16	9 - 10	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	03/03/16	14 - 15	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/03/16	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/03/16	29 - 30	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/03/16	39 - 40	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/03/16	39 - 40	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/03/16	49 - 50	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/03/16	59 - 60	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	03/03/16	69 - 70	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)

TABLE 3-2d

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC1-T2h	03/04/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/04/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/04/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/04/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/04/16	14 - 15	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/04/16	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/04/16	29 - 30	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/04/16	39 - 40	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC1-T2i	03/05/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/05/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/05/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/05/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/05/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/05/16	19 - 20	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T2j	03/05/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/05/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/05/16	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/05/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/05/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/05/16	14 - 15	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/05/16	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/05/16	19 - 20	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC1-T5D	01/12/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	9.6	11	ND (5.1)	6.5	10	ND (5.1)	14	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	ND	71.9	14
	01/12/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	30	24	58	5.3	20	30	ND (5.3)	65	ND (5.3)	6	ND (5.3)	22	54	22	292.3	36
	01/12/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	30	ND (52)	ND (52)	ND (52)	ND (52)	32	ND (52)	73	ND (5.2)	ND (52)	ND (5.2)	28	63	28	198	60
	01/12/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/12/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/12/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.5	ND (5.1)	ND (5.1)	5.8	ND (5.1)	8.9	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.9	ND	30.1	6.3
	01/12/16	19 - 20	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/12/16	19 - 20	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)

TABLE 3-2d

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC1-T6D	02/09/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/09/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/09/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/09/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/09/16	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/09/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/09/16	14 - 15	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)
	02/09/16	19 - 20	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1-T7	02/19/17	0 - 0.5	N	---	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350) *	ND (350)	ND (350)	ND (350)	ND (350)	ND (350) *	ND (350)	ND (350)	ND (350)	ND (5.3)	ND (350)	ND (350)	ND	ND	ND (400) *
AOC4-GB10	02/10/10	0 - 0.5	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	28 J	15 J	33 J	9.6 J	ND (5.6)	25 J	ND (5.6)	45 J	ND (5.6)	10 J	ND (5.6)	13 J	36 J	13	201.6	25
AOC4-GB11	02/10/10	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	13	7.9	16	5.4	ND (5.4)	ND (5.4)	ND (5.4)	21	ND (5.4)	5.4	ND (5.4)	9	19	9	87.7	14
	02/10/10	0 - 0.5	FD	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	13	11	20	8	ND (5.5)	13	ND (5.5)	28	ND (5.5)	7.6	ND (5.5)	13	23	13	123.6	18
AOC4-GB12	02/10/10	0 - 0.5	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	12	12	19	9	ND (5.6)	ND (5.6)	ND (5.6)	7.8	ND (5.6)	8.6	ND (5.6)	ND (5.6)	7.8	ND	76.2	19
Old Well-BCW-1	09/11/13	7 - 8	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
PA-01	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	16	26	64 J	9.5	18 J	31	ND (5.1)	35	ND (5.1)	10	ND (5.1)	11	34	11	243.5	38
PA-03	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	47 J	95	230	51	75	120 J	ND (51)	110 J	ND (5.1)	ND (51)	ND (5.1)	34 J	100 J	34	828	150
PA-04	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
PA-14	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	130	ND (52)	ND (52)	ND (52)	ND (52)	37 J	ND (5.2)	ND (52)	ND (5.2)	12 J	28 J	12	195	70
PA-15	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.7 J	210 J	350	720	180	240	350	ND (52)	230 J	ND (5.2)	180	5.5 J	150 J	190 J	165.2	2,650	490
PA-16	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	7.6	ND (52)	14	ND (5.2)	ND (52)	ND (5.2)	9.6	12	9.6	33.6	58
SD-14	01/11/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	110	100	200	31	72	140	ND (5.2)	260	ND (5.2)	33	ND (5.2)	96	230	102.9	1,176	140
	01/11/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	100	84	140	33	53	110	ND (5.2)	220	ND (5.2)	33	ND (5.2)	43	200	49.9	973	110
	01/11/16	5 - 6	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (57)	ND (57)	ND (57)	ND (57)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	ND (5.7)	ND	ND	ND (63)
	01/11/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SD-15	01/12/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.1	68	62	130	15	47	81	ND (5.4)	150	ND (5.4)	16	ND (5.4)	52	120	58.1	689	87
	01/12/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	01/12/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/12/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
SD-16	01/12/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/12/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SD-17	12/17/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	5.8	ND (51)	6.8	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	6.5	ND	19.1	57
	12/17/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	6.1	13	ND (5.1)	ND (5.1)	6.1	ND (5.1)	13	ND (5.1)	ND (5.1)	ND (5.1)	5.1	12	5.1	55.6	11
SD-18	12/17/15	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	ND	17.3	6.5

TABLE 3-2d

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
SD-19	01/13/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/13/16	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/13/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.8	ND (5.1)	ND (5.1)	ND (5.1)	7.1	7.4	7.1	26.3	6.5
	01/13/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/13/16	8 - 8.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SD-25	03/10/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.5	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	5.5	6
SD-26	03/10/16	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	27 J	32	80	10	26	46	ND (5)	92	ND (5)	9.4	ND (5)	34	75	34	397.4	46
SD-OS33	12/20/16	1.5 - 2	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5 J	9.2 J	18 J	ND (5.1)	9.9 J	9.6 J	ND (5.1)	14 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14 J	ND	80.2	14
TCS-4	03/25/14	59 - 60	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND	ND	ND (5.8)
	03/25/14	113	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	11	15	7.1	5.1	12	ND (5.1)	19	ND (5.1)	6.1	ND (5.1) J	8.4	14	8.4	100.3	17
TCS4-E	03/01/16	4 - 5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	73 J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	73	6.1
	03/01/16	4 - 5	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3) J	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/01/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	27 J	ND (5.1)	82 J	8.2 J	39 J	65 J	ND (5.1)	80 J	ND (5.1)	ND (5.1)	ND (5.1)	35 J	73 J	35	374.2	17
TCS4-N	03/01/16	4 - 5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	9.2	ND (5.3)	ND (5.3)	7.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	22.2	9.4
	03/01/16	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
TCS4-S	03/01/16	4 - 5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/01/16	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ǂ	This location is in an area where soil is transitioning into sediment.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-2e

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	**2,870**	**24,000,000**
			Residential Regional Screening Levels [2]:	**39,000**	**78,000,000**
			Residential DTSC-SL [3]:	**NE**	**24,000**
			Ecological Comparison Values [4]:	**2,870**	**NE**
			Background [5]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Methyl acetate**
Category 1					
AOC1-BCW1	09/20/08	0 - 0.5	N	ND (330)	---
	09/20/08	2 - 3	N	ND (330)	ND (5.2)
AOC1-BCW2	10/04/08	0 - 0.5	N	ND (330)	---
	10/04/08	2 - 3	N	ND (340)	---
	10/04/08	5 - 6	N	ND (330)	---
	10/04/08	9 - 10	N	ND (350)	---
AOC1-BCW3	10/04/08	0 - 0.5	N	ND (340)	---
	10/04/08	2 - 3	N	ND (330)	---
	10/04/08	5 - 6	N	ND (340)	---
	10/04/08	9 - 10	N	ND (350)	---
	10/04/08	9 - 10	FD	ND (350)	---
AOC1-BCW4	10/04/08	0 - 0.5	N	ND (340)	---
	10/04/08	2 - 3	N	ND (330)	---
	10/04/08	5 - 6	N	ND (340)	---
	10/04/08	9 - 10	N	ND (350)	---
AOC1-BCW5	10/04/08	0 - 0.5	N	ND (330)	---
	10/04/08	2 - 3	N	ND (330)	ND (5.2)
	10/04/08	5 - 6	N	ND (340)	---
	10/04/08	9 - 10	N	ND (350)	---
	10/04/08	9 - 10	FD	ND (350)	---
AOC1-BCW6	08/22/08 ǂ	0 - 0.5	N	ND (470)	---
	08/22/08 ǂ	2 - 3	N	ND (480)	ND (6.4)
AOC1-T1a	10/16/08	0 - 0.5	N	ND (330)	---
	10/16/08	2 - 3	N	ND (330)	ND (7)
	10/16/08	5 - 6	N	ND (330)	---
	10/16/08	9 - 10	N	ND (330)	---
AOC1-T1b	10/16/08	0 - 0.5	N	ND (330)	---
	10/16/08	0 - 0.5	FD	ND (330)	---
	10/16/08	2 - 3	N	ND (340)	ND (4.9)
	10/16/08	5 - 6	N	ND (330)	---
	10/16/08	9 - 10	N	ND (330)	---

TABLE 3-2e
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	2,870	24,000,000
			Residential Regional Screening Levels [2]:	39,000	78,000,000
			Residential DTSC-SL [3]:	NE	24,000
			Ecological Comparison Values [4]:	2,870	NE
			Background [5]:	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Methyl acetate**
AOC1-T1c	10/16/08	0 - 0.5	N	ND (340)	---
	10/16/08	2 - 3	N	ND (340)	ND (5.2)
	10/16/08	2 - 3	FD	ND (350)	ND (5)
	10/16/08	5 - 6	N	ND (340)	---
	10/16/08	9 - 10	N	ND (340)	---
AOC1-T2a	10/05/08	0 - 0.5	N	ND (330)	---
	10/16/08	2 - 3	N	ND (330)	---
	10/16/08	5 - 6	N	ND (330)	---
	10/16/08	9 - 10	N	ND (340)	---
AOC1-T2b	10/16/08	0 - 0.5	N	ND (340)	---
	10/16/08	2 - 3	N	ND (340)	ND (5.2)
	10/16/08	5 - 6	N	ND (330)	---
	10/16/08	9 - 10	N	ND (340)	---
	10/16/08	9 - 10	FD	ND (340)	---
AOC1-T2c	10/08/08	0 - 0.5	N	ND (330)	---
	10/08/08	2 - 3	N	ND (330)	---
	10/08/08	5 - 6	N	ND (330)	---
	10/08/08	9 - 10	N	ND (340)	---
AOC1-T2d	10/07/08	0 - 0.5	N	ND (340)	---
	10/07/08	2 - 3	N	ND (340)	---
	10/07/08	5 - 6	N	ND (340)	---
	10/07/08	9 - 10	N	ND (340)	---
	10/07/08	19 - 20	N	ND (350)	---
	10/07/08	29 - 30	N	ND (340)	---
	10/07/08	29 - 30	FD	ND (350)	---
	10/07/08	39 - 40	N	ND (350)	---
	10/07/08	49 - 50	N	ND (350)	---
	10/08/08	59 - 60	N	ND (330)	---
	10/08/08	69 - 70	N	ND (360)	---

TABLE 3-2e

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	**2,870**	**24,000,000**
			Residential Regional Screening Levels [2]:	**39,000**	**78,000,000**
			Residential DTSC-SL [3]:	**NE**	**24,000**
			Ecological Comparison Values [4]:	**2,870**	**NE**
			Background [5]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Methyl acetate**
AOC1-T2e	10/16/08	0 - 0.5	N	ND (330)	---
	10/16/08	2 - 3	N	ND (330)	---
	10/16/08	2 - 3	FD	ND (340)	---
	10/16/08	5 - 6	N	ND (330)	---
	10/16/08	9 - 10	N	ND (340)	---
AOC1-T3a	10/05/08	0 - 0.5	N	ND (330)	---
	10/17/08	2 - 3	N	ND (330)	6.6
	10/17/08	5 - 6	N	ND (330)	---
	10/17/08	9 - 10	N	ND (330)	---
AOC1-T3b	10/05/08	0 - 0.5	N	ND (330)	---
	10/17/08	2 - 3	N	ND (350)	---
	10/17/08	5 - 6	N	ND (330)	---
	10/17/08	9 - 10	N	ND (340)	---
	10/17/08	9 - 10	FD	ND (340)	---
AOC1-T3c	10/05/08	0 - 0.5	N	ND (330)	---
	10/05/08	2 - 3	N	ND (330)	---
	10/05/08	5 - 6	N	370	---
	10/05/08	9 - 10	N	ND (330)	---
AOC1-T4a	10/03/08	0 - 0.5	N	ND (330)	---
	10/03/08	2 - 3	N	ND (330)	---
	10/03/08	5 - 6	N	ND (330)	---
	10/03/08	9 - 10	N	ND (330)	---
AOC1-T4b	10/02/08	0 - 0.5	N	ND (330)	---
	10/02/08	2 - 3	N	ND (340)	---
	10/02/08	2 - 3	FD	ND (340)	---
	10/02/08	5 - 6	N	ND (340)	---
	10/02/08	9 - 10	N	ND (340)	---
AOC1-T4c	10/04/08	0 - 0.5	N	ND (330)	---
	10/04/08	2 - 3	N	ND (340)	ND (6.9)
	10/04/08	5 - 6	N	ND (340)	---
	10/04/08	9 - 10	N	ND (340)	---

TABLE 3-2e
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	2,870	24,000,000
			Residential Regional Screening Levels [2]:	39,000	78,000,000
			Residential DTSC-SL [3]:	NE	24,000
			Ecological Comparison Values [4]:	2,870	NE
			Background [5]:	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	bis (2-ethylhexyl) phthalate	Methyl acetate
AOC1-T5a	10/04/08	0 - 0.5	N	ND (330)	---
	10/04/08	2 - 3	N	ND (330)	---
	10/04/08	5 - 6	N	ND (330)	---
	10/04/08	9 - 10	N	ND (340)	---
	10/04/08	9 - 10	FD	ND (340)	---
AOC1-T5b	10/04/08	0 - 0.5	N	ND (330)	---
	10/04/08	2 - 3	N	ND (340)	ND (7.4)
	10/04/08	5 - 6	N	ND (330)	---
	10/04/08	9 - 10	N	ND (340)	---
AOC1-T5c	10/04/08	0 - 0.5	N	ND (330)	---
	10/04/08	2 - 3	N	ND (330)	---
	10/04/08	5 - 6	N	ND (330)	---
	10/04/08	9 - 10	N	ND (330)	---
AOC1-T6a	09/30/08	0 - 0.5	N	ND (330)	---
	09/30/08	2.5 - 3	N	ND (340)	---
	09/30/08	2.5 - 3	FD	ND (340)	---
	09/30/08	5.5 - 6	N	ND (340)	---
	09/30/08	9.5 - 10	N	ND (340)	---
AOC1-T6b	09/30/08	0 - 0.5	N	ND (330)	---
	09/30/08	2.5 - 3	N	ND (330)	---
	09/30/08	5.5 - 6	N	ND (330)	---
	09/30/08	9.5 - 10	N	ND (330)	---
	09/30/08	9.5 - 10	FD	ND (330)	---
AOC1-T6c	09/30/08	0 - 0.5	N	ND (330)	---
	09/30/08	2.5 - 3	N	ND (330)	ND (5)
	09/30/08	5.5 - 6	N	ND (330)	---
AOC4-1	10/14/08	0 - 0.5	N	ND (330)	---
	10/14/08	0.5 - 1	N	ND (330)	---
	10/14/08	2 - 3	N	810	12
AOC16-5	02/20/17	0 - 0.5	N	ND (340)	ND (9) J
AOC1-7	01/09/17	0 - 0.5	N	ND (340)	ND (6.3)
AOC1-8	01/05/17	0 - 0.5	N	ND (350)	ND (6.7)
AOC1-T7	02/19/17	0 - 0.5	N	ND (350)	ND (5.3) J

TABLE 3-2e

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	**2,870**	**24,000,000**
			Residential Regional Screening Levels [2]:	**39,000**	**78,000,000**
			Residential DTSC-SL [3]:	**NE**	**24,000**
			Ecological Comparison Values [4]:	**2,870**	**NE**
			Background [5]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Methyl acetate**
Old Well-BCW-1	09/11/13	7 - 8	N	ND (370)	---
PA-01	11/09/15	0 - 1	N	ND (340)	---
PA-03	11/09/15	0 - 1	N	2,000	---
PA-04	11/09/15	0 - 1	N	ND (340)	---
PA-14	01/27/16	0 - 1	N	ND (3,400) *	---
PA-15	01/27/16	0 - 1	N	ND (3,400) *	---
PA-16	01/27/16	0 - 1	N	ND (340)	---
TCS-4	03/25/14	59 - 60	N	ND (330) J	---
	03/25/14	113	N	ND (330) J	---

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.
Only detected SVOCs and VOCs are presented.

‡	This location is in an area where soil is transitioning into sediment.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-2f

Sample Results: Total Petroleum Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC1-BCW1	09/20/08	0 - 0.5	N	12.6	31.8
	09/20/08	2 - 3	N	ND (10)	ND (10)
AOC1-BCW2	10/04/08	0 - 0.5	N	ND (10)	31 J
	10/04/08	2 - 3	N	ND (10)	11.1 J
	10/04/08	5 - 6	N	ND (10)	17.6 J
	10/04/08	9 - 10	N	ND (10)	ND (10)
AOC1-BCW3	10/04/08	0 - 0.5	N	ND (10)	21.6 J
	10/04/08	2 - 3	N	ND (10)	10.7 J
	10/04/08	5 - 6	N	ND (10)	ND (10)
	10/04/08	9 - 10	N	ND (10)	ND (10)
	10/04/08	9 - 10	FD	ND (10)	ND (10)
AOC1-BCW4	10/04/08	0 - 0.5	N	15.8	17.8 J
	10/04/08	2 - 3	N	ND (10)	ND (10)
	10/04/08	5 - 6	N	ND (10)	ND (10)
	10/04/08	9 - 10	N	ND (10)	ND (10)
AOC1-BCW5	10/04/08	0 - 0.5	N	28.9	30.1 J
	10/04/08	2 - 3	N	10.5	22.6 J
	10/04/08	5 - 6	N	ND (10)	ND (10)
	10/04/08	9 - 10	N	ND (10)	ND (10)
	10/04/08	9 - 10	FD	ND (10)	ND (10)
AOC1-BCW6	08/22/08 ǂ	0 - 0.5	N	ND (10)	17.5
	08/22/08 ǂ	2 - 3	N	ND (10)	16.3
AOC1-T1a	10/16/08	0 - 0.5	N	ND (10)	ND (10)
	10/16/08	2 - 3	N	ND (10)	ND (10)
	10/16/08	5 - 6	N	ND (10)	15.5
	10/16/08	9 - 10	N	ND (10)	ND (10)
AOC1-T1b	10/16/08	0 - 0.5	N	ND (10)	ND (10)
	10/16/08	0 - 0.5	FD	ND (10)	ND (10)
	10/16/08	2 - 3	N	21.3	276
	10/16/08	5 - 6	N	ND (10)	21
	10/16/08	9 - 10	N	ND (10)	34.4
AOC1-T1c	10/16/08	0 - 0.5	N	ND (10)	26.2
	10/16/08	2 - 3	N	11.8	82.8
	10/16/08	2 - 3	FD	15	104
	10/16/08	5 - 6	N	ND (10)	36.5
	10/16/08	9 - 10	N	ND (10)	ND (10)

TABLE 3-2f
Sample Results: Total Petroleum Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC1-T2a	10/05/08	0 - 0.5	N	ND (10)	ND (10)
	10/16/08	2 - 3	N	ND (10)	ND (10)
	10/16/08	5 - 6	N	ND (10)	ND (10)
	10/16/08	9 - 10	N	ND (10)	ND (10)
AOC1-T2b	10/16/08	0 - 0.5	N	ND (10)	12.9
	10/16/08	2 - 3	N	ND (10)	14.4
	10/16/08	5 - 6	N	ND (10)	10.9
	10/16/08	9 - 10	N	ND (10)	ND (10)
	10/16/08	9 - 10	FD	ND (10)	ND (10)
AOC1-T2c	10/08/08	0 - 0.5	N	ND (10)	ND (10)
	10/08/08	2 - 3	N	ND (10)	ND (10)
	10/08/08	5 - 6	N	ND (10)	ND (10)
	10/08/08	9 - 10	N	ND (10)	ND (10)
AOC1-T2d	10/07/08	0 - 0.5	N	ND (10)	ND (10)
	10/07/08	2 - 3	N	ND (10)	17.5
	10/07/08	5 - 6	N	ND (10)	ND (10)
	10/07/08	9 - 10	N	21.4	25.2
	10/07/08	19 - 20	N	ND (10)	ND (10)
	10/07/08	29 - 30	N	ND (10)	ND (10)
	10/07/08	29 - 30	FD	ND (10)	ND (10)
	10/07/08	39 - 40	N	ND (10)	ND (10)
	10/07/08	49 - 50	N	ND (10)	ND (10)
	10/08/08	59 - 60	N	ND (10)	ND (10)
	10/08/08	69 - 70	N	ND (10)	ND (10)
AOC1-T2e	10/16/08	0 - 0.5	N	ND (10)	ND (10)
	10/16/08	2 - 3	N	ND (10)	11.9
	10/16/08	2 - 3	FD	ND (10)	10.9
	10/16/08	5 - 6	N	ND (10)	41.1
	10/16/08	9 - 10	N	ND (10)	14.5
AOC1-T3a	10/05/08	0 - 0.5	N	ND (10)	ND (10)
	10/17/08	2 - 3	N	ND (10)	11
	10/17/08	5 - 6	N	ND (10)	14.4
	10/17/08	9 - 10	N	ND (10)	ND (10)
AOC1-T3b	10/05/08	0 - 0.5	N	ND (10)	ND (10)
	10/17/08	2 - 3	N	ND (10)	24.9
	10/17/08	5 - 6	N	ND (10)	17.6
	10/17/08	9 - 10	N	ND (10)	11.1
	10/17/08	9 - 10	FD	ND (10)	ND (10)

TABLE 3-2f
Sample Results: Total Petroleum Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC1-T3c	10/05/08	0 - 0.5	N	ND (10)	11.2
	10/05/08	2 - 3	N	ND (10)	ND (10)
	10/05/08	5 - 6	N	ND (10)	19
	10/05/08	9 - 10	N	ND (10)	10
AOC1-T4a	10/03/08	0 - 0.5	N	21	25 J
	10/03/08	2 - 3	N	ND (10)	15.6 J
	10/03/08	5 - 6	N	ND (10)	ND (10)
	10/03/08	9 - 10	N	ND (10)	ND (10)
AOC1-T4b	10/02/08	0 - 0.5	N	ND (10)	ND (10)
	10/02/08	2 - 3	N	ND (10)	ND (10)
	10/02/08	2 - 3	FD	ND (10)	34.3
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	9 - 10	N	ND (10)	ND (10)
AOC1-T4c	10/04/08	0 - 0.5	N	ND (10) J	ND (10) J
	10/04/08	2 - 3	N	ND (10) J	ND (10) J
	10/04/08	5 - 6	N	ND (10) J	ND (10) J
AOC1-T5a	10/04/08	0 - 0.5	N	ND (10) J	ND (10) J
	10/04/08	5 - 6	N	ND (10)	ND (10)
	10/04/08	9 - 10	N	ND (10)	ND (10)
	10/04/08	9 - 10	FD	ND (10)	16.5 J
AOC1-T5b	10/04/08	0 - 0.5	N	ND (10)	ND (10)
	10/04/08	2 - 3	N	ND (10)	ND (10)
	10/04/08	5 - 6	N	ND (10)	ND (10)
	10/04/08	9 - 10	N	ND (10) J	ND (10) J
AOC1-T5c	10/04/08	0 - 0.5	N	ND (10)	ND (10)
	10/04/08	2 - 3	N	ND (10)	ND (10)
	10/04/08	5 - 6	N	ND (10)	ND (10)
	10/04/08	9 - 10	N	ND (10)	ND (10)
AOC1-T6a	09/30/08	0 - 0.5	N	ND (10)	21.4
	09/30/08	2.5 - 3	N	ND (10)	13.5
	09/30/08	2.5 - 3	FD	ND (10)	13.7
	09/30/08	5.5 - 6	N	ND (10)	ND (10)
	09/30/08	9.5 - 10	N	ND (10)	10.5
AOC1-T6b	09/30/08	0 - 0.5	N	ND (10)	10.9
	09/30/08	2.5 - 3	N	ND (10)	ND (10)
	09/30/08	5.5 - 6	N	ND (10)	ND (10)
	09/30/08	9.5 - 10	N	ND (10)	ND (10)
	09/30/08	9.5 - 10	FD	ND (10)	ND (10)

TABLE 3-2f

Sample Results: Total Petroleum Hydrocarbons
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1]:	**230**	**11,000**
			Residential Regional Screening Levels [2]:	**NE**	**NE**
			Residential DTSC-SL [3]:	**NE**	**NE**
			RWQCB Environmental Screening Levels [4]:	**230**	**11,000**
			Ecological Comparison Values [5]:	**NE**	**NE**
			Background [6]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC1-T6c	09/30/08	0 - 0.5	N	ND (10)	13.5
	09/30/08	2.5 - 3	N	ND (10)	ND (10)
	09/30/08	5.5 - 6	N	ND (10)	ND (10)
AOC4-1	10/14/08	0 - 0.5	N	ND (10)	ND (10)
	10/14/08	0.5 - 1	N	ND (10)	ND (10)
	10/14/08	2 - 3	N	ND (10)	ND (10)
Old Well-BCW-1	09/11/13	7 - 8	N	ND (11)	20
PA-01	11/09/15	0 - 1	N	ND (10)	13
PA-03	11/09/15	0 - 1	N	ND (10)	41
PA-04	11/09/15	0 - 1	N	ND (10)	16
PA-14	01/27/16	0 - 1	N	ND (10)	50
PA-15	01/27/16	0 - 1	N	12	110
PA-16	01/27/16	0 - 1	N	ND (10)	43
SD-14	01/11/16	0 - 1	N	ND (10)	26
	01/11/16	2 - 3	N	ND (10)	31
	01/11/16	5 - 6	N	300	3,700
	01/11/16	9 - 10	N	ND (10)	31
SD-15	01/12/16	0 - 0.5	N	ND (11)	100
	01/12/16	2 - 3	N	ND (11)	ND (11)
	01/12/16	5 - 6	N	ND (11)	ND (11)
	01/12/16	9 - 10	N	ND (11)	ND (11)
SD-16	01/12/16	0 - 0.5	N	ND (10)	ND (10)
	01/12/16	2 - 3	N	ND (10)	ND (10)
	01/12/16	5 - 6	N	ND (10)	ND (10)
	01/12/16	9 - 10	N	ND (10)	ND (10)
SD-17	12/17/15	0 - 0.5	N	ND (10)	61
	12/17/15	2 - 3	N	ND (10)	64
SD-18	12/17/15	0 - 0.5	N	ND (11)	ND (11)
SD-19	01/13/16	0 - 0.5	N	ND (10)	ND (10)
	01/13/16	0 - 0.5	FD	ND (11)	ND (11)
	01/13/16	2 - 3	N	ND (10)	ND (10)
	01/13/16	5 - 6	N	ND (10)	ND (10)
	01/13/16	8 - 8.5	N	ND (10)	ND (10)
SD-25	03/10/16	0 - 1	N	ND (10)	ND (10)
SD-26	03/10/16	0 - 1	N	ND (10)	21
SD-OS33	12/20/16	1.5 - 2	N	13 J	25 J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ǂ	This location is in an area where soil is transitioning into sediment.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-2g

Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
Category 1												
AOC1-BCW1	09/20/08	0 - 0.5	N	---	---	---	---	8.21	---	---	---	---
	09/20/08	2 - 3	N	---	---	---	---	9.02	---	---	---	---
AOC1-BCW2	10/04/08	0 - 0.5	N	---	---	---	---	8.85	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	8.35	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	8.72	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	8.68	---	---	---	---
AOC1-BCW3	10/04/08	0 - 0.5	N	---	---	---	---	8.76	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	8.68	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	8.58	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	9.5	---	---	---	---
	10/04/08	9 - 10	FD	---	---	---	---	9.54	---	---	---	---
AOC1-BCW4	10/04/08	0 - 0.5	N	---	---	---	---	8.06	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	8.28	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	8.69	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	8.94	---	---	---	---
AOC1-BCW5	10/04/08	0 - 0.5	N	---	---	---	---	9.43	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	8.58	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	8.26	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	9.55	---	---	---	---
	10/04/08	9 - 10	FD	---	---	---	---	9.48	---	---	---	---
AOC1-BCW6	08/22/08 ‡	0 - 0.5	N	---	---	---	---	7.74	---	---	---	---
	08/22/08 ‡	2 - 3	N	---	---	---	---	7.89	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
AOC1-T1a	10/16/08	0 - 0.5	N	---	---	---	---	8.66	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	8.85	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	8.83	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	9.03	---	---	---	---
AOC1-T1b	10/16/08	0 - 0.5	N	---	---	---	---	9.18	---	---	---	---
	10/16/08	0 - 0.5	FD	---	---	---	---	9.08	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	9.04	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	8.87	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	9.66	---	---	---	---
AOC1-T1c	10/16/08	0 - 0.5	N	---	---	---	---	9.24	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	9.47	---	---	---	---
	10/16/08	2 - 3	FD	---	---	---	---	9.44	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	8.94	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	9.15	---	---	---	---
AOC1-T2a	10/05/08	0 - 0.5	N	---	---	---	---	8.26	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	8.63	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	8.7	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	8.75	---	---	---	---
AOC1-T2b	10/16/08	0 - 0.5	N	---	---	---	---	9.29	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	9.18	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	9.33	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	9.4	---	---	---	---
	10/16/08	9 - 10	FD	---	---	---	---	9.29	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
			Interim Screening Level [1]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Residential Regional Screening Levels [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
AOC1-T2c	10/08/08	0 - 0.5	N	---	---	---	---	8.89	---	---	---	---
	10/08/08	2 - 3	N	---	---	---	---	9.15	---	---	---	---
	10/08/08	5 - 6	N	---	---	---	---	9.43	---	---	---	---
	10/08/08	9 - 10	N	---	---	---	---	9.36	---	---	---	---
AOC1-T2d	10/07/08	0 - 0.5	N	---	---	---	---	9.31	---	---	---	---
	10/07/08	2 - 3	N	---	---	---	---	8.86	---	---	---	---
	10/07/08	5 - 6	N	---	---	---	---	8.95	---	---	---	---
	10/07/08	9 - 10	N	---	---	---	---	9.23	---	---	---	---
	10/07/08	19 - 20	N	---	---	---	---	9.68	---	---	---	---
	10/07/08	29 - 30	N	---	---	---	---	9.73	---	---	---	---
	10/07/08	29 - 30	FD	---	---	---	---	9.78	---	---	---	---
	10/07/08	39 - 40	N	---	---	---	---	9.29	---	---	---	---
	10/07/08	49 - 50	N	---	---	---	---	9.35	---	---	---	---
	10/08/08	59 - 60	N	---	---	---	---	9.39	---	---	---	---
	10/08/08	69 - 70	N	---	---	---	---	9.5	---	---	---	---
AOC1-T2e	10/16/08	0 - 0.5	N	---	---	---	---	9.17	---	---	---	---
	10/16/08	2 - 3	N	---	---	---	---	9.28	---	---	---	---
	10/16/08	2 - 3	FD	---	---	---	---	9.26	---	---	---	---
	10/16/08	5 - 6	N	---	---	---	---	9.13	---	---	---	---
	10/16/08	9 - 10	N	---	---	---	---	9.14	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
AOC1-T3a	10/05/08	0 - 0.5	N	---	---	---	---	8.49	---	---	---	---
	10/17/08	2 - 3	N	---	---	---	---	9.32	---	---	---	---
	10/17/08	5 - 6	N	---	---	---	---	8.94	---	---	---	---
	10/17/08	9 - 10	N	---	---	---	---	8.35	---	---	---	---
AOC1-T3b	10/05/08	0 - 0.5	N	---	---	---	---	8.85	---	---	---	---
	10/17/08	2 - 3	N	---	---	---	---	9.11	---	---	---	---
	10/17/08	5 - 6	N	---	---	---	---	8.99	---	---	---	---
	10/17/08	9 - 10	N	---	---	---	---	9.22	---	---	---	---
	10/17/08	9 - 10	FD	---	---	---	---	9.05	---	---	---	---
AOC1-T3c	10/05/08	0 - 0.5	N	---	---	---	---	8.44	---	---	---	---
	10/05/08	2 - 3	N	---	---	---	---	9.2	---	---	---	---
	10/05/08	5 - 6	N	---	---	---	---	9.05	---	---	---	---
	10/05/08	9 - 10	N	---	---	---	---	9.14	---	---	---	---
AOC1-T4a	10/03/08	0 - 0.5	N	---	---	---	---	8.06	---	---	---	---
	10/03/08	2 - 3	N	---	---	---	---	8.7	---	---	---	---
	10/03/08	5 - 6	N	---	---	---	---	8.83	---	---	---	---
	10/03/08	9 - 10	N	---	---	---	---	8.76	---	---	---	---
AOC1-T4b	10/02/08	0 - 0.5	N	---	---	---	---	9.02	---	---	---	---
	10/02/08	2 - 3	N	---	---	---	---	9.13	---	---	---	---
	10/02/08	2 - 3	FD	---	---	---	---	9.11	---	---	---	---
	10/02/08	5 - 6	N	---	---	---	---	9.89	---	---	---	---
	10/02/08	9 - 10	N	---	---	---	---	9.99	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
AOC1-T4c	10/04/08	0 - 0.5	N	---	---	---	---	9.35	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	8.9	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	9.1	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	9.41	---	---	---	---
AOC1-T5a	10/04/08	0 - 0.5	N	---	---	---	---	8.87	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	9.17	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	9.44	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	9.25	---	---	---	---
	10/04/08	9 - 10	FD	---	---	---	---	9.3	---	---	---	---
AOC1-T5b	10/04/08	0 - 0.5	N	---	---	---	---	8.98	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	9.13	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	9.05	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	9.14	---	---	---	---
AOC1-T5c	10/04/08	0 - 0.5	N	---	---	---	---	8.91	---	---	---	---
	10/04/08	2 - 3	N	---	---	---	---	8.82	---	---	---	---
	10/04/08	5 - 6	N	---	---	---	---	9.01	---	---	---	---
	10/04/08	9 - 10	N	---	---	---	---	8.83	---	---	---	---
AOC1-T6a	09/30/08	0 - 0.5	N	---	---	---	---	8.19	---	---	---	---
	09/30/08	2.5 - 3	N	---	---	---	---	8.6	---	---	---	---
	09/30/08	2.5 - 3	FD	---	---	---	---	8.81	---	---	---	---
	09/30/08	5.5 - 6	N	---	---	---	---	8.78	---	---	---	---
	09/30/08	9.5 - 10	N	---	---	---	---	8.71	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
AOC1-T6b	09/30/08	0 - 0.5	N	---	---	---	---	8.54	---	---	---	---
	09/30/08	2.5 - 3	N	---	---	---	---	8.89	---	---	---	---
	09/30/08	5.5 - 6	N	---	---	---	---	8.76	---	---	---	---
	09/30/08	9.5 - 10	N	---	---	---	---	8.59	---	---	---	---
	09/30/08	9.5 - 10	FD	---	---	---	---	8.79	---	---	---	---
AOC1-T6c	09/30/08	0 - 0.5	N	---	---	---	---	8.6	---	---	---	---
	09/30/08	2.5 - 3	N	---	---	---	---	9.42	---	---	---	---
	09/30/08	5.5 - 6	N	---	---	---	---	8.85	---	---	---	---
AOC1-1	01/23/16	0 - 0.5	N	---	---	---	---	9.1	---	---	---	---
	01/23/16	2 - 3	N	---	---	---	---	9.5	---	---	---	---
	01/23/16	5 - 6	N	---	---	---	---	8.5	---	---	---	---
	01/23/16	9 - 10	N	---	---	---	---	9	---	---	---	---
	01/23/16	14 - 15	N	---	---	---	---	9	---	---	---	---
	01/23/16	14 - 15	FD	---	---	---	---	9.1	---	---	---	---
	01/24/16	19 - 20	N	---	---	---	---	9.7	---	---	---	---
	01/24/16	29 - 30	N	---	---	---	---	8.6	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Ortho phosphate**	**pH**	**Specific conductance**	**Sulfate**	**Sulfide**	**Total organic carbon**
AOC1-3	01/25/16	0 - 0.5	N	---	---	---	---	9	---	---	---	---
	01/25/16	2 - 3	N	---	---	---	---	9.5	---	---	---	---
	01/25/16	5 - 6	N	---	---	---	---	10	---	---	---	---
	01/25/16	9 - 10	N	---	---	---	---	8.6	---	---	---	---
	01/25/16	14 - 15	N	---	---	---	---	8.5	---	---	---	---
	01/25/16	14 - 15	FD	---	---	---	---	8.4	---	---	---	---
	01/25/16	19 - 20	N	---	---	---	---	8.8	---	---	---	---
	01/25/16	29 - 30	N	---	---	---	---	9.9	---	---	---	---
	01/25/16	39 - 40	N	---	---	---	---	10	---	---	---	---
	01/25/16	49 - 50	N	---	---	---	---	9.8	---	---	---	---
	01/25/16	59 - 60	N	---	---	---	---	9.9	---	---	---	---
	01/26/16	69 - 70	N	---	---	---	---	9.9	---	---	---	---
	01/26/16	79 - 80	N	---	---	---	---	9.9	---	---	---	---
AOC1-4	01/23/16	0 - 0.5	N	---	---	---	---	9.2	---	---	---	---
	01/23/16	2 - 3	N	---	---	---	---	9.2	---	---	---	---
	01/23/16	5 - 6	N	---	---	---	---	9.7	---	---	---	---
	01/23/16	9 - 10	N	---	---	---	---	9.6	---	---	---	---
	01/23/16	14 - 15	N	---	---	---	---	9.5	---	---	---	---
	01/23/16	19 - 20	N	---	---	---	---	9.7	---	---	---	---
	01/23/16	19 - 20	FD	---	---	---	---	9.6	---	---	---	---
	01/23/16	29 - 30	N	---	---	---	---	8.9	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Ortho phosphate**	**pH**	**Specific conductance**	**Sulfate**	**Sulfide**	**Total organic carbon**
AOC1-T1e	01/11/16	0 - 1	N	---	---	---	---	9.3	---	---	---	---
	01/11/16	2 - 3	N	---	---	---	---	9.5	---	---	---	---
	01/11/16	5 - 6	N	---	---	---	---	9.5	---	---	---	---
	01/11/16	9 - 10	N	---	---	---	---	9.4	---	---	---	---
	01/11/16	9 - 10	FD	---	---	---	---	9.4	---	---	---	---
	01/11/16	14 - 15	N	---	---	---	---	9.3	---	---	---	---
AOC1-T1f	01/12/16	0 - 1	N	---	---	---	---	9.2	---	---	---	---
	01/12/16	2 - 3	N	---	---	---	---	9.4	---	---	---	---
	01/12/16	5 - 6	N	---	---	---	---	8.9	---	---	---	---
	01/12/16	9 - 10	N	---	---	---	---	9.4	---	---	---	---
	01/12/16	9 - 10	FD	---	---	---	---	9.3	---	---	---	---
	01/12/16	14 - 15	N	---	---	---	---	9.3	---	---	---	---
AOC1-T2f	12/17/15	0 - 1	N	---	---	---	---	9	---	---	---	---
	12/17/15	2 - 3	N	---	---	---	---	9	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Ortho phosphate**	**pH**	**Specific conductance**	**Sulfate**	**Sulfide**	**Total organic carbon**
MW-10	06/27/97	1	N	---	---	---	---	9.03	---	---	---	---
	06/27/97	3	N	---	---	---	---	8.84	---	---	---	---
	06/27/97	6	N	---	---	---	---	8.73	---	---	---	---
	06/27/97	10	N	---	---	120	311	8.75	---	9.2 J	ND (0.4)	520
	06/27/97	20	N	---	---	---	---	8.87	---	---	---	---
	06/27/97	25	N	10	---	---	---	9.38	---	---	---	---
	06/27/97	30	N	---	---	---	---	9.85	---	---	---	---
	06/27/97	35	N	---	---	116	271	---	---	35	ND (0.4)	630
	06/27/97	40	N	---	---	---	---	9.2	---	---	---	---
	06/28/97	50	N	10	---	---	---	9.28	---	---	---	---
	06/27/97	60	N	---	---	---	---	9.26	---	---	---	---
	06/27/97	70	N	---	---	115	324	9.28	---	8.5 J	ND (0.4)	420
	06/27/97	75	N	12	---	---	---	8.09	---	---	---	---
	06/27/97	75	FD	---	---	---	---	9.29	---	---	---	---
	06/27/97	82	N	9	---	111	291	9.07	---	25	ND (0.4)	340

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
MW-11	06/29/97	1	N	---	---	---	---	8.62	---	---	---	---
	06/29/97	3	N	---	---	---	---	9.03	---	---	---	---
	06/29/97	6	N	---	---	---	---	8.83	---	---	---	---
	06/29/97	10	N	---	---	110	299	8.92	---	11	ND (0.4)	410
	06/29/97	20	N	0.7	---	---	---	9.09	---	---	---	---
	06/29/97	30	N	---	---	120	307	9.07	---	17	ND (0.4)	110
	06/29/97	40	N	10	---	---	---	9.03	---	---	---	---
	06/29/97	50	N	---	---	---	---	9.69	---	---	---	---
	06/29/97	60	N	11	---	112	291	9.25	---	18	ND (0.4)	330
	06/29/97	60	FD	---	---	---	---	9.46	---	---	---	---
	06/29/97	69	N	10	---	117	257	9.04	---	20	ND (0.4)	360
MW-13	07/09/97	10	N	---	---	---	---	8.66	---	---	---	---
	07/09/97	20	N	4.07	---	136.6	208	8.44	---	71	ND (0.4)	270
	07/09/97	25	N	4.16	---	138.5	224	---	---	93	ND (0.4)	ND (100)
	07/09/97	30	N	4.01	---	---	---	8.45	---	---	---	---
	07/09/97	40	N	---	---	---	---	8.7	---	---	---	---
	07/09/97	40	FD	---	---	---	---	8.72	---	---	---	---
Old Well-BCW-1	09/11/13	7 - 8	N	---	---	---	---	8.2	---	---	---	---
SS-1	06/29/97 ‡	0.5	N	---	---	---	---	8.56	---	---	---	---
	06/29/97 ‡	1.5	N	---	---	---	---	8.3	---	---	---	---
SS-2	06/29/97	0.5	N	---	---	---	---	8.05	---	---	---	---
	06/29/97	1.5	N	---	---	---	---	8.46	---	---	---	---

TABLE 3-2g
Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Cation Exchange Capacity	Chloride	Electric Conductance	Ortho phosphate	pH	Specific conductance	Sulfate	Sulfide	Total organic carbon
SSB-1	06/25/97	1	N	---	---	---	---	8.51	---	---	---	---
	06/25/97	3	N	---	---	---	---	8.79	---	---	---	---
	06/25/97	6	N	---	---	---	---	8.57	---	---	---	---
	06/25/97	10	N	---	---	157	327	8.35	---	20	ND (0.4)	140
SSB-6	06/30/97	1	N	---	---	---	---	8.74	---	---	---	---
	06/30/97	3	N	---	---	---	---	9.04	---	---	---	---
	06/30/97	6	N	---	---	---	---	8.8	---	---	---	---
	06/30/97	10	N	---	---	120	295	8.94	---	22	ND (0.4)	310
SSB-7	06/30/97	1	N	---	---	---	---	8.61	---	---	---	---
	06/30/97	3	N	---	---	---	---	8.76	---	---	---	---
	06/30/97	6	N	---	---	---	---	8.95	---	---	---	---
	06/30/97	10	N	---	---	122	284	9.48	---	34	ND (0.4)	ND (100)
SSB-8	07/10/97	1	N	---	---	---	---	8.46	---	---	---	---
	07/10/97	3	N	---	---	---	---	8.53	---	---	---	---
	07/10/97	6	N	---	---	---	---	8.2	---	---	---	---
	07/10/97	10	N	---	---	147.9	204	8.9	---	12	ND (0.4)	ND (100)
	07/10/97	10	FD	---	---	---	---	8.5	---	---	---	---
SSB-9	07/10/97	1	N	---	---	---	---	7.95	---	---	---	---
	07/10/97	3	N	---	---	---	---	8.52	---	---	---	---
	07/10/97	6	N	---	---	---	---	8.44	---	---	---	---
	07/10/97	10	N	---	---	141.4	252	8.82	---	9.2 J	ND (0.4)	ND (100)

TABLE 3-2g

Sample Results: General Chemistry Parameters
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry								
				(meq/100g)	(mg/kg)	(mV)	(mg/kg)	(pH Units)	(µS/cm)	(mg/kg)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Cation Exchange Capacity**	**Chloride**	**Electric Conductance**	**Ortho phosphate**	**pH**	**Specific conductance**	**Sulfate**	**Sulfide**	**Total organic carbon**
XMW-9	06/25/97	3	N	---	---	---	---	8.47	---	---	---	---
	06/25/97	10	N	---	---	144	359	9.27	---	21	ND (0.4)	140
	06/25/97	10	FD	---	---	---	---	9.13	---	---	---	---
	06/25/97	30	N	16.7	---	140	363	8.53	---	33	ND (0.4)	110
	06/25/97	50	N	---	---	188	305	8.42	---	21	ND (0.4)	260
	06/25/97	70	N	3.4	---	97	238	8.56	---	17	ND (0.4)	ND (100)
Category 2												
Spill04162006_Sam	04/26/06	0	N	---	530	---	---	8.25	320	230	---	---
Spill04162006_Sam	04/26/06	0	N	---	380	---	---	8.41	610	1,700	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

‡	This location is in an area where soil is transitioning into sediment.
Δ	sediment sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
μS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-2h

Sample Results: Pesticides
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC1-BCW1	09/20/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-BCW5	10/04/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-BCW6 ‡	08/22/08	0 - 0.5	N	ND (2.8) *	ND (2.8) *	ND (2.8) *	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (2.8)	ND (1.4)	ND (2.8)	ND (2.8)	ND (2.8)	ND (2.8)	ND (2.8)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (7.1)	ND (71) J
AOC1-T1a	10/16/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-T1b	10/16/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	10/16/08	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-T1c	10/16/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC1-T2b	10/16/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC1-T3a	10/05/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-T4c	10/04/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-T5b	10/04/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC1-T6c	09/30/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC4-1	10/14/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC16-5	02/20/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC1-7	01/09/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC1-8	01/05/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC1-BCW10	02/04/16	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/04/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/04/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/04/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/04/16	9 - 10	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC1-BCW11	02/04/16	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1) J	ND (5.3)	ND (53) J
	02/04/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/04/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/04/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
AOC1-BCW13	02/04/16	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/04/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/04/16	5 - 6	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.3)	ND (1.1)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
	02/04/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
AOC1-BCW16	02/04/16	0 - 0.5	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	02/04/16	2 - 3	N	ND (2.4) *	ND (2.4) *	ND (2.4) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.4)	ND (1.2)	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.4)	---	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (6.1)	ND (61) J
	02/04/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/04/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J

TABLE 3-2h
Sample Results: Pesticides
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
AOC1-BCW18	02/05/16	0 - 0.5	N	ND (2.6) *	ND (2.6) *	ND (2.6) *	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (2.6)	ND (1.3)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	---	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (6.6)	ND (66) J
	02/05/16	2 - 3	N	ND (2.5) *	ND (2.5) *	ND (2.5) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.5)	ND (1.2)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	---	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (6.2)	ND (62) J
	02/05/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	02/05/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
AOC1-BCW20	02/05/16	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/05/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/05/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
	02/05/16	9 - 10	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.3)	ND (1.1)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.7)	ND (57) J
AOC1-BCW21	02/05/16	0 - 0.5	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.3)	ND (1.1)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.7)	ND (57) J
	02/05/16	2 - 3	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	02/05/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	02/05/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
AOC1-BCW25	02/05/16	0 - 0.5	N	ND (2.6) *	ND (2.6) *	ND (2.6) *	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (2.6)	ND (1.3)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	---	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (6.5)	ND (65) J
	02/05/16	2 - 3	N	ND (2.6) *	ND (2.6) *	ND (2.6) *	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (2.6)	ND (1.3)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	---	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (6.5)	ND (65) J
	02/05/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	02/05/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
AOC1-BCW27	02/05/16	0 - 0.5	N	ND (2.4) *	ND (2.4) *	ND (2.4) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.4)	ND (1.2)	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.4)	---	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (6)	ND (60) J
	02/05/16	2 - 3	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.3)	ND (1.1)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
	02/05/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/05/16	9 - 10	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.3)	ND (1.1)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.7)	ND (57) J
AOC1-BCW28	02/05/16	0 - 0.5	N	ND (2.4) *	ND (2.4) *	ND (2.4) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.4)	ND (1.2)	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.4)	---	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (6)	ND (60) J
	02/05/16	2 - 3	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.3)	ND (1.2)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (5.8)	ND (58) J
	02/05/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
	02/05/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
AOC1-BCW29	02/04/16	0 - 0.5	N	ND (2.6) *	ND (2.6) *	ND (2.6) *	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (2.6)	ND (1.3)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	---	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (6.6)	ND (66) J
	02/04/16	2 - 3	N	ND (2.7) *	ND (2.7) *	ND (2.7) *	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (2.7)	ND (1.4)	ND (2.7)	ND (2.7)	ND (2.7)	ND (2.7)	---	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (6.8)	ND (68) J
	02/04/16	5 - 6	N	ND (3.1) *	ND (3.1) *	ND (3.1) *	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (3.1)	ND (1.5)	ND (3.1)	ND (3.1)	ND (3.1)	ND (3.1)	---	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (7.7)	ND (77) J
	02/04/16	9 - 10	N	ND (2.4) *	ND (2.4) *	ND (2.4) *	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (2.4)	ND (1.2)	ND (2.4)	ND (2.4)	ND (2.4)	ND (2.4)	---	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (6.1)	ND (61) J

TABLE 3-2h

Sample Results: Pesticides
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1] :				2.1	2.1	2.1	39	86	440	300	300	5	470,000	470,000	470,000	19,000	19,000	19,000	300	440	130	70	320,000	490
Residential Regional Screening Levels [2] :				1,900	2,000	1,900	39	86	1,700	300	300	34	470,000	470,000	470,000	19,000	19,000	19,000	570	1,700	130	70	320,000	490
Residential DTSC-SL [3] :				NE	NE	NE	NE	300	440	300	300	NE	NE	NE	NE	NE	NE	NE	300	440	NE	NE	NE	NE
Ecological Comparison Values [4] :				2.1	2.1	2.1	NE	NE	470	NE	NE	5	NE	NE	NE	NE	NE	NE	NE	470	NE	NE	NE	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
AOC1-T2g	03/03/16	9 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	03/03/16	14 - 15	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/03/16	19 - 20	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/03/16	29 - 30	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/03/16	39 - 40	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/03/16	39 - 40	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/03/16	49 - 50	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/03/16	59 - 60	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
	03/03/16	69 - 70	N	ND (2.1) *	ND (2.1) *	ND (2.1) J*	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1) J	ND (2.1) J	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1) J	ND (1.1)	ND (5.3) J	ND (53) J
AOC1-T2h	03/04/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/04/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/04/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/04/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/04/16	14 - 15	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/04/16	19 - 20	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/04/16	29 - 30	N	ND (2.1) J*	ND (2.1) J*	ND (2.1) J*	ND (1) J	ND (1) J	ND (1) J	ND (1) J	ND (1) J	ND (2.1) J	ND (1) J	ND (2.1) J	ND (2.1) J	ND (2.1) J	ND (2.1) J	---	ND (1) J	ND (1) J	ND (1) J	ND (1) J	ND (5.2) J	ND (52) J
	03/04/16	39 - 40	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC1-T2i	03/05/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/05/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/05/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/05/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/05/16	14 - 15	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/05/16	19 - 20	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC1-T2j	03/05/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/05/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/05/16	2 - 3	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/05/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/05/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/05/16	14 - 15	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/05/16	19 - 20	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
	03/05/16	19 - 20	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC1-T7	02/19/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J

TABLE 3-2h
Sample Results: Pesticides
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ǂ	This location is in an area where soil is transitioning into sediment.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-2i

Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC1-BCW1	09/20/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	91	ND (17)	ND (17)	ND (17)	99.5
	09/20/08	2 - 3	N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17)
AOC1-BCW5	10/04/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-BCW6	08/22/08 ǂ	0 - 0.5	N	ND (23)	ND (47)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)
AOC1-T1a	10/16/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-T1b	10/16/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	10/16/08	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-T1c	10/16/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	75	ND (17)	ND (17)	ND (17)	83.5
AOC1-T2b	10/16/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-T3a	10/05/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	63	ND (17)	ND (17)	ND (17)	71.5
	10/17/08	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-T4c	10/04/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-T5b	10/04/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC1-T6c	09/30/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC4-1	10/14/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	24	ND (17)	ND (17)	ND (17)	32.5
AOC1-1	01/23/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/23/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	---	---	27.5
AOC1-2	01/23/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/23/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-3	01/25/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/25/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-4	01/23/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/23/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)

TABLE 3-2i
Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC16-5	02/20/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	440	ND (17)	---	---	465.5
	02/20/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	350	ND (17)	---	---	375.5
	02/20/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC1-7	01/09/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17) J	ND (17)	---	---	ND (17)
	01/09/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	ND (17) J	ND (17)	---	---	ND (17)
	01/09/17	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17) J	ND (17)	---	---	ND (17)
	01/09/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17) J	ND (17)	---	---	ND (17)
	01/09/17	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17) J	ND (17)	---	---	ND (17)
	01/09/17	14 - 15	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	ND (17) J	ND (17)	---	---	ND (17)
AOC1-BCW10	02/04/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	530	160	---	---	690
	02/04/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	9 - 10	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-BCW11	02/04/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	02/04/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	9 - 10	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
AOC1-BCW12	02/04/16	0 - 0.5	N	ND (18) J	ND (37) J	ND (18) J	ND (18) J	ND (18) J	33 J	26 J	---	---	59
	02/04/16	2 - 3	N	ND (18) J	ND (37) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (18)
AOC1-BCW13	02/04/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	02/04/16	5 - 6	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (19)
	02/04/16	9 - 10	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)

TABLE 3-2i
Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC1-BCW16	02/04/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	02/04/16	2 - 3	N	ND (20)	ND (40)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	---	---	ND (20)
	02/04/16	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/04/16	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
AOC1-BCW18	02/05/16	0 - 0.5	N	ND (22)	ND (43)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	---	---	ND (22)
	02/05/16	2 - 3	N	ND (20)	ND (41)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	---	---	ND (20)
	02/05/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	02/05/16	9 - 10	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
AOC1-BCW20	02/05/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	5 - 6	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (19)
	02/05/16	9 - 10	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (19)
AOC1-BCW21	02/05/16	0 - 0.5	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (19)
	02/05/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	02/05/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	02/05/16	9 - 10	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
AOC1-BCW25	02/05/16	0 - 0.5	N	ND (21)	ND (43)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	---	---	ND (21)
	02/05/16	2 - 3	N	ND (21)	ND (43)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	---	---	ND (21)
AOC1-BCW27	02/05/16	0 - 0.5	N	ND (20)	ND (40)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	---	---	ND (20)
	02/05/16	2 - 3	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (19)
AOC1-BCW28	02/05/16	0 - 0.5	N	ND (20)	ND (39)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	---	---	ND (20)
	02/05/16	2 - 3	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (19)
AOC1-BCW29	02/04/16	0 - 0.5	N	ND (22)	ND (43)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	---	---	ND (22)
	02/04/16	2 - 3	N	ND (22)	ND (45)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	---	---	ND (22)

TABLE 3-2i
Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC1-BCW7	02/05/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	14 - 15	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	19 - 20	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/05/16	19 - 20	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-BCW9	02/04/16	0 - 0.5	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (18)
	02/04/16	2 - 3	N	ND (18) J	ND (35) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (18)
AOC1-T1e	01/11/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/11/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-T1f	01/12/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/12/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-T2f	12/17/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-T2g	03/03/16	9 - 10	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/03/16	14 - 15	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/03/16	19 - 20	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/03/16	29 - 30	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/03/16	39 - 40	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/03/16	39 - 40	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/03/16	49 - 50	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/03/16	59 - 60	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/03/16	69 - 70	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)

TABLE 3-2i
Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC1-T2h	03/04/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/04/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	21	ND (17)	---	---	29.5
	03/04/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/04/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/04/16	14 - 15	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/04/16	19 - 20	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/04/16	29 - 30	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (17)
	03/04/16	39 - 40	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-T2i	03/05/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	18	ND (17)	---	---	26.5
	03/05/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	47.5
	03/05/16	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC1-T2j	03/05/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/05/16	14 - 15	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/05/16	19 - 20	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/05/16	19 - 20	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
AOC1-T5D	01/12/16	0 - 1	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	97	ND (17)	---	---	105.5
	01/12/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	110 J	ND (18)	---	---	119
	01/12/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	240 J	ND (17)	---	---	248.5

TABLE 3-2i

Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
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				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC1-T6D	02/09/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/09/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC4-GB10	02/10/10	0 - 0.5	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	350	ND (18)	---	---	359
AOC4-GB11	02/10/10	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	350 J	ND (18)	---	---	359
	02/10/10	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	900 J	ND (18)	---	---	909
AOC4-GB12	02/10/10	0 - 0.5	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	420	ND (18)	---	---	429
Old Well-BCW-1	09/11/13	7 - 8	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
PA-01	11/09/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	260	ND (17)	---	---	285.5
PA-03	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	89	89	---	---	195
PA-04	11/09/15	0 - 1	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	17	ND (17) J	---	---	42.5
PA-14	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	120	ND (17)	---	---	145.5
PA-15	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	70	ND (17)	---	---	95.5
PA-16	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	300	ND (17)	---	---	325.5
SD-14	01/11/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	1,000	320	ND (17)	ND (17)	1,337
	01/11/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	85	50	ND (17)	ND (17)	152
	01/11/16	5 - 6	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
	01/11/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
SD-15	01/12/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	67	65	ND (18)	ND (18)	150
	01/12/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/12/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/12/16	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
SD-16	01/12/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/12/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/12/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/12/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

TABLE 3-2i

Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
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				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
SD-17	12/17/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-18	12/17/15	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
SD-19	01/13/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/13/16	0 - 0.5	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/13/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/13/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/13/16	8 - 8.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-25	03/10/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	300	ND (17)	---	---	325.5
SD-26	03/10/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	180	ND (17)	---	---	205.5
SD-OS33	12/20/16	1.5 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
TCS-4	03/25/14	59 - 60	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/25/14	113	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
TCS4-E	03/01/16	4 - 5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/01/16	4 - 5	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	03/01/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
TCS4-N	03/01/16	4 - 5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/01/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
TCS4-S	03/01/16	4 - 5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	03/01/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

‡ This location is in an area where soil is transitioning into sediment.

TABLE 3-2i

Sample Results: Polychlorinated Biphenyls
AOC 1 – Area around Former Percolation Bed
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*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
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PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
Category 1																							
AOC1-BCW6	08/22/08	0 - 0.5	N	2,100 J	210 J	ND (8.4) J	14 J	14 J	75 J	14 J	25 J	ND (5.5) J	ND (5.3) J*	ND (4) J	ND (350) J	ND (5.5) J	ND (0.31) J	ND (2) J	16,000 J	510 J	37	64	64
	08/22/08	2 - 3	N	570 J	85 J	ND (6.7) J	3.1 J	ND (2) J	ND (0.79) J	ND (5.2) J	7.9 J	ND (2.3) J	ND (0.37) J	ND (1.5) J	ND (2.5) J	ND (1.5) J	ND (0.1) J	ND (0.2) J	8,000 J	200 J	5	11	11
AOC1-1	01/23/16	0 - 0.5	N	5,600 J	410 J	31 J	43 J	44 J	180 J	20 J	100 J	ND (8) J	23 J	6.4 J	ND (2,900) J	13 J	1.1 J	ND (0.18) J	87,000 J	700 J	220	300	300
	01/23/16	2 - 3	N	3,700 J	370 J	28 J	20 J	23 J	120 J	13 J	49 J	5.7 J	11 J	3.8 J	ND (1,900) J	7.1 J	ND (0.12) J	ND (1.2) J	66,000 J	810 J	140	190	190
AOC1-2	01/23/16	0 - 0.5	N	41	4.2 J	ND (0.68)	ND (0.66)	ND (0.41)	1.5 J	ND (0.45)	1.1 J	ND (0.23)	ND (1.4)	ND (0.4)	ND (5.3)	ND (0.16)	ND (0.08)	ND (0.14)	300	8.1 J	1.5	1.9	1.9
	01/23/16	2 - 3	N	ND (1.3)	ND (0.32)	ND (0.093)	ND (0.17)	ND (0.11)	ND (0.15)	ND (0.095)	ND (0.15)	0.29 J	ND (0.064)	ND (0.057)	ND (0.11)	ND (0.057)	ND (0.046)	ND (0.053)	21 J	ND (0.83)	0.17	0.15	0.15
AOC1-3	01/25/16	0 - 0.5	N	6,200 J	670 J	ND (35)	62 J	ND (40)	230 J	ND (35)	140 J	ND (47)	37 J	ND (3.4)	ND (3,100)	15 J	ND (0.47)	ND (3.4)	45,000 J	730 J	250	330	330
	01/25/16	2 - 3	N	3,600	300	ND (15)	31	ND (18)	120	26	76	ND (3.3)	15	ND (10)	ND (1,700)	ND (11)	ND (0.33)	ND (0.95)	33,000 J	480	130	180	180
	01/25/16	5 - 6	N	13 J	1.3 J	ND (0.32) J	ND (0.25) J	ND (0.39) J	ND (0.23) J	ND (0.18) J	ND (0.23) J	ND (0.29) J	ND (0.27) J	ND (0.21) J	ND (5.4) J	ND (0.22) J	ND (0.14) J	ND (0.073) J	200 J	ND (3.6)	0.74	0.8	0.8
	01/25/16	9 - 10	N	5.2 J	ND (0.82) J	ND (0.36) J	ND (0.19) J	ND (0.13) J	ND (0.098) J	ND (0.24) J	0.5 J	ND (0.15) J	ND (0.29) J	ND (0.1) J	ND (1.3) J	ND (0.11) J	ND (0.22) J	ND (0.2) J	72 J	ND (2.1)	0.58	0.52	0.52
AOC1-4	01/23/16	0 - 0.5	N	24 J	ND (2.4) J	ND (0.6) J	ND (0.9) J	ND (0.59) J	ND (0.46) J	ND (0.55) J	ND (0.47) J	ND (0.71) J	ND (0.27) J	ND (0.14) J	ND (3.8) J	ND (0.15) J	ND (0.1) J	ND (0.15) J	240 J	ND (5)	0.74	0.92	0.92
	01/23/16	2 - 3	N	18 J	2 J	ND (2.4) J	ND (0.23) J	ND (0.31) J	ND (0.22) J	ND (0.29) J	ND (0.22) J	ND (0.37) J	ND (0.16) J	ND (0.091) J	ND (2.7) J	ND (0.096) J	ND (0.081) J	ND (0.084) J	310 J	ND (5.6)	0.5	0.66	0.66
AOC1-5	01/09/17	0 - 0.5	N	120	ND (9.5)	ND (1.4)	ND (0.37)	ND (0.44)	ND (0.47)	ND (0.58)	ND (1.6)	ND (0.25)	ND (0.47)	ND (0.11)	ND (6)	ND (0.12)	ND (0.087)	ND (0.098)	1,300	28	1.2	2.4	2.4
	01/09/17	2 - 3	N	6.5 J	ND (0.2)	ND (0.24)	ND (0.11)	ND (0.053)	ND (0.17)	ND (0.048)	ND (0.16)	ND (0.063)	ND (0.07)	ND (0.064)	ND (0.2)	ND (0.067)	ND (0.071)	ND (0.1)	ND (44)	ND (1.3)	0.2	0.2	0.2
	01/09/17	5 - 6	N	280	45	ND (2.5)	1.3 J	ND (1.2)	ND (0.22)	ND (1.7)	ND (2.2)	ND (0.52)	ND (0.49)	ND (0.24)	ND (53)	ND (0.25)	ND (0.077)	ND (0.12)	4,200	280	4.7	8	8
	01/09/17	9 - 10	N	8.1 J	ND (1.6)	ND (1.1)	ND (0.29)	ND (0.14)	ND (0.19)	ND (0.13)	ND (1.1)	ND (0.56)	ND (0.14)	ND (0.11)	0.77 J	ND (0.11)	ND (0.071)	ND (0.27)	83	ND (4.4)	0.51	0.45	0.45
	01/09/17	14 - 15	N	1.8 J	ND (0.13)	ND (0.39)	ND (0.3)	ND (0.067)	ND (0.09)	ND (0.061)	0.27 J	ND (0.079)	ND (0.064)	ND (0.043)	ND (0.069)	ND (0.046)	ND (0.12)	ND (0.18)	ND (9.2)	ND (0.73)	0.26	0.19	0.19
AOC1-6	01/09/17	0 - 0.5	N	440	42	ND (4.5)	ND (1.6)	ND (1.3)	12 J	ND (2.8)	5.1 J	ND (1.6)	ND (1)	ND (0.52)	ND (110)	ND (0.55)	ND (0.18)	ND (0.25)	4,500	94	8.8	14	14
	01/09/17	2 - 3	N	77	ND (10)	ND (0.72)	ND (0.49)	ND (0.51)	2.4 J	ND (0.46)	ND (0.79)	ND (0.6)	ND (0.19)	ND (0.39)	ND (20)	ND (0.41)	ND (0.092)	ND (0.13)	750	26	1.8	2.7	2.7
	01/09/17	5 - 6	N	ND (8.9)	ND (1.1)	ND (0.24)	ND (0.12)	ND (0.13)	ND (0.14)	ND (0.32)	ND (0.28)	ND (0.15)	ND (0.06)	ND (0.051)	1.2 J	ND (0.053)	ND (0.044)	ND (0.039)	ND (75)	ND (1.5)	0.28	0.3	0.3
	01/09/17	9 - 10	N	ND (3.5)	ND (0.37)	ND (0.38)	ND (0.052)	ND (0.092)	ND (0.051)	ND (0.084)	ND (0.05)	ND (0.11)	ND (0.098)	ND (0.11)	ND (0.095)	ND (0.11)	ND (0.069)	ND (0.063)	ND (41)	ND (1.5)	ND (0.21)	ND (0.16)	ND (0.16)
	01/09/17	14 - 15	N	3.5 J	ND (0.34)	ND (0.13)	ND (0.11)	ND (0.14)	ND (0.11)	ND (0.097)	ND (0.11)	ND (0.13)	ND (0.21)	ND (0.047)	ND (0.31)	ND (0.049)	ND (0.067)	ND (0.048)	ND (30)	ND (1.6)	0.24	0.24	0.24
AOC16-5	02/20/17	0 - 0.5	N	820 J	54	5.9 J	3.8 J	9 J	26	ND (3.1)	8.4 J	ND (1.6)	ND (2.4)	ND (0.23)	ND (370)	ND (2.8)	ND (0.095)	ND (0.16)	6,800 J	100	26	36	36
	02/20/17	0 - 0.5	FD	440 J	28	3.1 J	2.1 J	5.3 J	15	ND (4.1)	4.9 J	1.3 J	ND (1.3)	ND (0.27)	ND (260)	ND (2.1)	ND (0.075)	ND (0.68)	3,700 J	45	18	23	23
	02/20/17	2 - 3	N	ND (7.9)	ND (0.57)	ND (0.18)	ND (0.069)	ND (0.081)	ND (0.34)	ND (0.078)	ND (0.11)	ND (0.094)	ND (0.065)	ND (0.047)	ND (5.9)	ND (0.049)	ND (0.031)	ND (0.036)	ND (66)	ND (0.91)	ND (0.42)	ND (0.44)	ND (0.44)
AOC1-7	01/09/17	0 - 0.5	N	480	38 J	ND (0.85)	1.4 J	1.8 J	7.7 J	ND (1.8)	ND (0.29)	ND (0.8)	ND (0.8)	ND (0.13)	ND (61)	ND (0.65)	ND (0.33)	0.38 J	5,100	130 J	6.2	12	12
	01/09/17	2 - 3	N	190 J	19	ND (1.3)	ND (0.8)	ND (1.1)	5 J	ND (0.95)	ND (1.8)	ND (0.43)	ND (0.28)	ND (0.33)	ND (41)	ND (0.35)	ND (0.075)	ND (0.11)	2,200 J	69	3.4	5.8	5.8
	01/09/17	2 - 3	FD	97 J	9.8 J	ND (0.79)	ND (0.64)	ND (0.45)	2.8 J	ND (0.41)	1.6 J	ND (0.53)	ND (0.57)	ND (0.14)	ND (30)	ND (0.14)	ND (0.073)	ND (0.12)	980 J	24 J	2.5	3.8	3.8
	01/09/17	5 - 6	N	4 J	ND (1.3)	1.2 J	ND (0.32)	ND (0.11)	ND (0.061)	ND (0.099)	ND (0.63)	ND (0.41)	ND (0.36)	ND (0.2)	0.84 J	ND (0.16)	ND (0.068)	ND (0.24)	51	2.5 J	0.61	0.49	0.49
	01/09/17	9 - 10	N	ND (0.27)	ND (0.42)	ND (0.59)	ND (0.19)	ND (0.28)	ND (0.083)	ND (0.07)	ND (0.24)	ND (0.53)	ND (0.048)	ND (0.1)	ND (0.079)	ND (0.056)	ND (0.055)	ND (0.077)	17 J	ND (1.2)	0.2	0.15	0.15
	01/09/17	14 - 15	N	1.1 J	ND (0.11)	ND (0.33)	ND (0.068)	ND (0.032)	ND (0.067)	ND (0.03)	ND (0.066)	ND (0.038)	ND (0.079)	ND (0.059)	ND (0.26)	ND (0.062)	ND (0.096)	ND (0.12)	12 J	ND (0.66)	0.21	0.15	0.15

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC1-8	01/05/17	0 - 0.5	N	130	18	ND (1.9)	ND (1.2)	ND (0.54)	5.4 J	1.9 J	2.9 J	ND (4.4)	ND (0.84)	ND (0.35)	ND (41)	ND (0.26)	ND (0.19)	ND (0.35)	1,200	41	4.1	5.8	5.8
	01/05/17	2 - 3	N	200	ND (1.5)	ND (1.8)	ND (2)	ND (1.9)	8.5 J	ND (1.6)	5.1 J	ND (2.1)	ND (0.95)	ND (0.97)	ND (78)	ND (0.98)	ND (0.3)	ND (0.44)	1,800	64	6.6	9	9
AOC1-BCW10	02/04/16	0 - 0.5	N	5,100	ND (240)	27	ND (7.1)	ND (1.1)	88	ND (45)	23	ND (1.3)	ND (4.2)	ND (0.58)	ND (570)	5.1 J	ND (0.4)	2.3 J	42,000	1,700	55	110	110
	02/04/16	2 - 3	N	670	ND (0.21)	ND (4)	3.5 J	ND (0.21)	17	ND (7.7)	7 J	1.6 J	ND (1)	ND (1.1)	ND (110)	ND (1.2)	ND (0.08)	ND (0.077)	6,700	120	9.7	18	18
	02/04/16	5 - 6	N	17	ND (0.091)	ND (0.12)	ND (0.2)	ND (0.16)	0.78 J	ND (1.5)	ND (0.19)	ND (0.24)	ND (0.16)	ND (1.5)	ND (0.27)	ND (1.6)	ND (0.045)	ND (0.069)	130	2.2 J	1.2	0.79	0.79
	02/04/16	9 - 10	N	ND (1.7)	0.38 J	ND (0.094)	ND (0.064)	ND (0.15)	ND (0.12)	ND (0.14)	ND (0.06)	ND (0.18)	ND (0.074)	ND (0.074)	ND (0.42)	ND (0.08)	ND (0.049)	ND (0.11)	ND (14)	ND (0.14)	0.22	0.15	0.15
	02/04/16	9 - 10	FD	ND (0.88)	ND (0.03)	ND (0.067)	ND (0.046)	ND (0.052)	ND (0.036)	ND (0.048)	ND (0.034)	ND (0.061)	ND (0.052)	ND (0.062)	ND (0.21)	ND (0.067)	ND (0.025)	0.1 J	ND (3.8)	ND (0.047)	0.2	0.089	0.089
AOC1-BCW11	02/04/16	0 - 0.5	N	380	ND (1.3)	ND (1.6)	1.9 J	ND (2.8)	8.6 J	ND (4.9)	3.7 J	ND (1.1)	ND (0.35)	ND (0.19)	ND (58)	ND (0.21)	ND (0.36)	ND (0.36)	4,700	52	5.4	10	10
	02/04/16	2 - 3	N	830	ND (1.9)	ND (8)	4 J	ND (2.3)	25	ND (19)	9.3 J	ND (2.7)	ND (2.4)	ND (0.53)	ND (2.4)	2.7 J	ND (0.19)	ND (0.96)	9,700	320 J	9.1	19	19
	02/04/16	5 - 6	N	1,800	110	12 J	7.8 J	ND (2.1)	50	4.6 J	18	ND (2.4)	ND (3.8)	ND (1.4)	ND (340)	ND (1.6)	0.5 J	1 J	16,000	440	29	52	52
	02/04/16	9 - 10	N	ND (2.2)	ND (0.055)	ND (0.07)	ND (0.13)	ND (0.15)	ND (0.13)	ND (0.14)	ND (0.15)	ND (0.18)	ND (0.1)	ND (0.06)	ND (0.76)	ND (0.065)	ND (0.061)	ND (0.16)	ND (13)	ND (0.56)	ND (0.27)	ND (0.19)	ND (0.19)
AOC1-BCW12	02/04/16	0 - 0.5	N	1,400	160	ND (11)	13	ND (7.7)	41	ND (6.8)	15	ND (8.7)	4.4 J	ND (7.5)	ND (380)	5.8 J	ND (0.32)	2.5 J	15,000	590	41	54	54
	02/04/16	2 - 3	N	2,900	410	ND (41)	ND (3.3)	ND (45)	70	ND (40)	15	ND (51)	ND (2.9)	ND (23)	ND (670)	ND (23)	ND (0.52)	ND (0.84)	50,000	2,300	70	100	100
	02/04/16	5 - 6	N	36 J	ND (1.8) J	ND (0.22) J	ND (0.39) J	ND (0.48) J	ND (0.37) J	ND (0.44) J	ND (0.37) J	ND (0.57) J	ND (0.28) J	ND (0.12) J	ND (15) J	ND (0.13) J	ND (0.063) J	ND (0.088) J	120 J	ND (3.2) J	1.2	1.5	1.5
AOC1-BCW13	02/04/16	0 - 0.5	N	550	36	5.4 J	2.6 J	5 J	16	ND (10)	ND (5.4)	ND (0.78)	ND (0.3)	ND (0.26)	ND (140)	2.1 J	0.27 J	0.9 J	5,200	260	14	19	19
	02/04/16	2 - 3	N	8.3 J	ND (0.39)	ND (0.19)	ND (0.29)	ND (0.21)	ND (0.088)	ND (0.22)	ND (0.23)	ND (0.25)	ND (0.13)	ND (0.07)	ND (1.9)	ND (0.075)	ND (0.051)	ND (0.047)	70	ND (0.96)	0.32	0.37	0.37
	02/04/16	5 - 6	N	ND (1.8)	0.21 J	ND (0.079)	0.14 J	ND (0.066)	ND (0.1)	ND (0.084)	ND (0.055)	ND (0.35)	ND (0.072)	ND (0.1)	ND (0.072)	ND (0.11)	ND (0.13)	0.26 J	ND (12)	ND (0.4)	0.46	0.21	0.21
	02/04/16	9 - 10	N	ND (2.3)	ND (0.2)	ND (0.093)	ND (0.074)	ND (0.098)	ND (0.22)	ND (0.091)	ND (0.069)	ND (0.12)	ND (0.18)	ND (0.069)	ND (0.6)	ND (0.074)	ND (0.075)	0.25 J	ND (7.6)	ND (0.26)	0.47	0.24	0.24
AOC1-BCW14	02/04/16	0 - 0.5	N	530	51	ND (2.8)	3.8 J	3.1 J	ND (0.4)	1.5 J	7.4 J	ND (3.7)	ND (1)	ND (1.6)	1.1 J	ND (1.6)	ND (0.52)	0.9 J	6,600	120	6	11	11
	02/04/16	2 - 3	N	47	6.2 J	ND (0.46)	ND (0.39)	ND (0.24)	1.5 J	ND (0.21)	0.78 J	ND (2.3)	ND (0.075)	ND (0.11)	ND (8.9)	ND (0.12)	ND (0.062)	ND (0.3)	680	14 J	1.1	1.7	1.7
AOC1-BCW15	02/04/16	0 - 0.5	N	260 J	24 J	2.4 J	1.8 J	1.5 J	7.4 J	ND (1.1) J	3.6 J	ND (0.42) J	ND (0.26) J	0.71 J	ND (81) J	ND (0.89) J	ND (0.064) J	0.56 J	2,700 J	80 J	6.8	9.6	9.6
AOC1-BCW16	02/04/16	0 - 0.5	N	580	53 J	4.8 J	4.5 J	ND (7.1)	24 J	ND (2)	9.4 J	ND (2.4)	3.8 J	ND (1.1)	ND (190)	ND (1.2)	ND (0.48)	ND (0.3)	5,400	190 J	18	26	26
	02/04/16	2 - 3	N	300	43	4.7 J	22	ND (0.16)	ND (1.1)	2 J	5 J	1.5 J	3.8 J	ND (0.7)	ND (130)	ND (0.73)	0.34 J	ND (0.46)	3,100	120	14	18	18
	02/04/16	5 - 6	N	26	2.3 J	ND (0.47)	ND (0.33)	0.63 J	ND (1.1)	ND (0.77)	ND (0.67)	ND (0.26)	ND (0.11)	ND (0.38)	ND (8.5)	ND (0.3)	ND (4.8) *	0.39 J	200	4.7 J	3.7	3.5	3.5
	02/04/16	9 - 10	N	ND (1.9)	ND (0.18)	ND (0.11)	ND (0.15)	ND (0.084)	ND (0.11)	ND (0.082)	0.22 J	ND (0.098)	ND (0.1)	ND (0.16)	ND (0.29)	ND (0.17)	ND (0.1)	ND (0.15)	ND (6.4)	ND (0.41)	0.32	0.21	0.21
AOC1-BCW17	02/04/16	0 - 0.5	N	15	1.7 J	ND (0.59)	ND (0.24)	ND (0.26)	ND (0.21)	ND (0.23)	ND (0.21)	ND (0.3)	ND (0.13)	ND (0.28)	ND (0.26)	ND (0.12)	ND (0.06)	ND (0.17)	120	3 J	0.37	0.42	0.42
	02/04/16	2 - 3	N	2 J	ND (0.49)	ND (0.052)	ND (0.1)	ND (0.1)	ND (0.086)	ND (0.089)	ND (0.12)	ND (0.11)	ND (0.061)	ND (0.069)	ND (0.2)	ND (0.069)	ND (0.051)	ND (0.091)	ND (24)	ND (0.37)	0.18	0.14	0.14
AOC1-BCW18	02/05/16	0 - 0.5	N	1,300	57 J	ND (6.7)	ND (2.8)	6.8 J	21	ND (0.46)	7.4 J	ND (1.2)	ND (1.7)	1.1 J	ND (110)	ND (0.8)	ND (0.21)	ND (0.49)	15,000	230 J	12	29	29
	02/05/16	2 - 3	N	4.1 J	ND (0.13)	ND (0.1)	ND (0.4)	ND (0.17)	ND (0.39)	ND (0.15)	ND (0.37)	ND (0.19)	ND (0.087)	ND (0.2)	ND (1.4)	ND (0.22)	ND (0.053)	ND (0.22)	ND (9.5)	0.39 J	0.43	0.31	0.31
	02/05/16	5 - 6	N	ND (0.29)	ND (0.05)	ND (0.036)	ND (0.056)	ND (0.032)	ND (0.055)	ND (0.03)	ND (0.072)	ND (0.084)	ND (0.073)	ND (0.09)	ND (0.1)	ND (0.097)	ND (0.076)	ND (0.3)	ND (0.66)	ND (0.068)	ND (0.3)	ND (0.13)	ND (0.13)
	02/05/16	9 - 10	N	ND (0.19)	ND (0.028)	ND (0.036)	ND (0.06)	ND (0.034)	ND (0.049)	ND (0.031)	ND (0.1)	ND (0.04)	ND (0.058)	ND (0.062)	ND (0.035)	ND (0.067)	ND (0.069)	ND (0.2)	ND (0.9)	ND (0.052)	ND (0.21)	ND (0.1)	ND (0.1)
AOC1-BCW19	02/05/16	0 - 0.5	N	7,100 J	470 J	29 J	28 J	41 J	160 J	14 J	57 J	13 J	13 J	10 J	ND (1,000) J	15 J	ND (0.82) J	4 J	97,000 J	1,200 J	120	210	210

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC1-BCW20	02/05/16	0 - 0.5	N	160	ND (0.2)	1.2 J	1.3 J	ND (0.24)	6.1 J	ND (3.1)	2.7 J	ND (0.28)	ND (0.26)	ND (0.32)	ND (42)	ND (0.34)	ND (0.068)	ND (0.064)	1,600	35	3.4	5.6	5.6
	02/05/16	2 - 3	N	4.4 J	ND (0.13)	ND (0.16)	ND (0.17)	ND (0.056)	ND (0.039)	ND (0.052)	ND (0.037)	ND (0.065)	ND (0.074)	ND (0.086)	ND (1.5)	ND (0.1)	ND (0.041)	ND (0.11)	ND (21)	ND (0.41)	0.26	0.22	0.22
	02/05/16	5 - 6	N	ND (3.1)	ND (0.088)	ND (0.068)	ND (0.17)	ND (0.075)	ND (0.069)	ND (0.069)	ND (0.14)	ND (0.087)	ND (0.054)	ND (0.1)	ND (1.1)	ND (0.11)	ND (0.06)	0.15 J	ND (13)	0.31 J	0.35	0.19	0.19
	02/05/16	9 - 10	N	ND (0.61)	ND (0.084)	ND (0.038)	ND (0.04)	ND (0.064)	ND (0.05)	ND (0.059)	ND (0.047)	ND (0.075)	ND (0.097)	ND (0.085)	ND (0.2)	ND (0.091)	ND (0.041)	ND (0.14)	ND (2)	ND (0.031)	ND (0.21)	ND (0.12)	ND (0.12)
AOC1-BCW21	02/05/16	0 - 0.5	N	2,000	ND (9.8)	ND (12)	5.2 J	14	44	ND (23)	16	3.8 J	4.6 J	ND (0.2)	5.5 J	3.5 J	ND (0.29)	ND (0.48)	20,000	440	18	42	42
	02/05/16	2 - 3	N	12 J	ND (0.086)	ND (0.11)	ND (0.13)	ND (0.12)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.14)	ND (0.12)	ND (0.075)	ND (0.12)	ND (0.081)	ND (0.053)	ND (0.14)	110	3.1 J	0.26	0.31	0.31
	02/05/16	5 - 6	N	ND (1)	ND (0.04)	ND (0.05)	ND (0.047)	ND (0.067)	ND (0.046)	ND (0.057)	ND (0.044)	ND (0.078)	ND (0.073)	ND (0.08)	ND (0.43)	ND (0.086)	ND (0.047)	ND (0.1)	ND (5.6)	ND (0.17)	ND (0.19)	ND (0.12)	ND (0.12)
	02/05/16	9 - 10	N	ND (0.73)	ND (0.069)	ND (0.087)	ND (0.03)	ND (0.05)	ND (0.062)	ND (0.12)	ND (0.034)	ND (0.058)	ND (0.074)	ND (0.052)	ND (0.39)	ND (0.056)	ND (0.055)	ND (0.04)	ND (3.4)	ND (0.19)	ND (0.15)	ND (0.12)	ND (0.12)
AOC1-BCW22	02/05/16	0 - 0.5	N	190 J	22 J	2.3 J	ND (0.63) J	ND (1.2) J	5.5 J	ND (0.99) J	2.1 J	ND (0.77) J	ND (0.87) J	ND (0.4) J	ND (49) J	ND (0.88) J	ND (0.15) J	ND (0.097) J	2,500 J	63 J	4.6	7	7
AOC1-BCW23	02/05/16	0 - 0.5	N	540	63	5.2 J	ND (4)	ND (3.4)	16	ND (4.5)	ND (4.9)	ND (1.5)	ND (2.3)	5.7 J	ND (170)	ND (2.3)	ND (0.34)	3.1 J	5,900	180	17	21	21
	02/05/16	2 - 3	N	16	1.9 J	ND (0.57)	ND (0.22)	ND (0.13)	ND (0.5)	ND (0.11)	ND (0.5)	0.67 J	ND (0.16)	ND (0.23)	ND (1.7)	ND (0.23)	ND (0.16)	ND (0.17)	120	2.3 J	0.62	0.65	0.65
AOC1-BCW24	02/05/16	0 - 0.5	N	830	58	ND (15)	4.9 J	ND (4.7)	20	ND (4.1)	12 J	ND (5.3)	1.7 J	ND (2)	ND (160)	ND (2)	ND (0.15)	ND (0.93)	10,000	150	16	27	27
	02/05/16	2 - 3	N	510	110	ND (28)	ND (1.5)	ND (8.3)	23	5.4 J	ND (5.7)	ND (1.7)	1.5 J	ND (3.5)	ND (250)	ND (3.5)	ND (0.068)	ND (0.2)	5,500	310	20	26	26
	02/05/16	5 - 6	N	ND (1.6) J	ND (0.079) J	ND (0.12) J	ND (0.11) J	ND (0.061) J	ND (0.1) J	ND (0.057) J	ND (0.1) J	ND (0.073) J	ND (0.11) J	ND (0.073) J	ND (0.55) J	ND (0.078) J	ND (0.086) J	ND (0.046) J	ND (8.3)	ND (0.13) J	ND (0.21)	ND (0.18)	ND (0.18)
AOC1-BCW25	02/05/16	0 - 0.5	N	1,700	110 J	12 J	7.8 J	ND (1.7)	50 J	ND (29)	16	ND (2)	4.7 J	ND (1)	ND (400)	ND (1.1)	ND (0.16)	1.4 J	17,000	620 J	36	58	58
	02/05/16	2 - 3	N	38	3.4 J	ND (0.32)	1.4 J	ND (0.16)	ND (0.3)	ND (1.6)	ND (0.56)	ND (0.18)	ND (0.2)	ND (0.15)	ND (17)	ND (0.16)	ND (0.056)	ND (0.12)	510	17 J	1.4	1.9	1.9
	02/05/16	5 - 6	N	7.2 J	ND (0.69)	ND (0.33)	ND (0.13)	ND (0.18)	ND (0.13)	ND (0.17)	ND (0.12)	ND (0.21)	ND (0.084)	ND (0.78)	ND (4.5)	ND (0.84)	ND (0.03)	ND (0.26)	73	6.6 J	0.93	0.58	0.58
	02/05/16	9 - 10	N	ND (0.36)	ND (0.032)	ND (0.04)	ND (0.03)	ND (0.057)	ND (0.03)	ND (0.053)	ND (0.055)	ND (0.066)	ND (0.042)	ND (0.036)	ND (0.15)	ND (0.039)	ND (0.023)	ND (0.076)	ND (1.8)	ND (0.037)	ND (0.11)	ND (0.067)	ND (0.067)
AOC1-BCW26	02/04/16	0 - 0.5	N	4,100	250	ND (18)	16	18	95	15	30	ND (13)	ND (1.7)	ND (3.1)	ND (540)	7.8 J	ND (0.5)	2.6 J	39,000	710	58	100	100
	02/04/16	2 - 3	N	ND (19)	3 J	ND (1.7)	ND (0.76)	ND (0.21)	ND (1.2)	ND (0.4)	ND (1.7)	ND (0.76)	ND (0.37)	0.26 J	ND (1.4)	ND (0.24)	ND (0.083)	ND (0.2)	ND (120)	ND (3.4)	0.78	0.75	0.75
AOC1-BCW27	02/05/16	0 - 0.5	N	91	ND (0.57)	ND (0.73)	ND (0.68)	ND (0.14)	3.5 J	ND (2.9)	1.3 J	ND (0.25)	ND (0.82)	ND (0.18)	ND (25)	ND (2)	ND (0.19)	0.7 J	660	21 J	4	3.9	3.9
	02/05/16	2 - 3	N	ND (0.2)	ND (0.095)	ND (0.035)	ND (0.055)	ND (0.041)	ND (0.054)	ND (0.038)	ND (0.052)	ND (0.048)	ND (0.071)	ND (0.084)	ND (0.066)	ND (0.091)	ND (0.052)	0.24 J	ND (1.2)	ND (0.095)	0.37	0.12	0.12
	02/05/16	5 - 6	N	0.6 J	ND (0.068)	ND (0.086)	ND (0.055)	ND (0.058)	ND (0.055)	ND (0.15)	ND (0.052)	ND (0.068)	ND (0.089)	ND (0.058)	ND (0.34)	ND (0.063)	ND (0.04)	ND (0.069)	4.4 J	ND (0.56)	0.17	0.13	0.13
	02/05/16	9 - 10	N	0.27 J	ND (0.028)	ND (0.035)	ND (0.08)	ND (0.022)	ND (0.029)	ND (0.02)	ND (0.027)	ND (0.026)	ND (0.037)	ND (0.032)	ND (0.29)	ND (0.035)	ND (0.053)	ND (0.19)	ND (1.5)	ND (0.076)	0.18	0.088	0.088
AOC1-BCW28	02/05/16	0 - 0.5	N	5,700	ND (28)	ND (35)	23	ND (74)	180	ND (68)	53	ND (86)	14	8.9 J	ND (1,000)	15	ND (1)	2.7 J	47,000	1,500	110	180	180
	02/05/16	2 - 3	N	16	ND (0.16)	ND (0.2)	ND (0.19)	ND (0.21)	ND (0.19)	ND (1.2)	ND (0.27)	ND (0.24)	ND (0.094)	ND (0.13)	ND (8.2)	ND (0.14)	ND (0.056)	ND (0.11)	130	4.7 J	0.75	0.83	0.83
	02/05/16	5 - 6	N	8 J	ND (0.71)	ND (0.14)	ND (0.2)	ND (0.19)	ND (0.19)	ND (0.33)	ND (0.18)	ND (0.22)	ND (0.097)	ND (0.12)	ND (4.8)	ND (0.13)	ND (0.19)	0.23 J	82	4 J	0.76	0.6	0.6
	02/05/16	9 - 10	N	ND (0.65)	ND (0.076)	ND (0.097)	ND (0.034)	ND (0.044)	ND (0.033)	ND (0.041)	ND (0.032)	ND (0.051)	ND (0.072)	ND (0.064)	ND (0.15)	ND (0.069)	ND (0.066)	ND (0.15)	ND (1.8)	ND (0.23)	ND (0.2)	ND (0.11)	ND (0.11)
AOC1-BCW29	02/04/16	0 - 0.5	N	2,900	280	ND (5)	ND (13)	ND (12)	68	ND (12)	ND (12)	ND (14)	ND (2.4)	10 J	ND (600)	ND (4.1)	ND (0.39)	ND (1.2)	30,000	1,300	47	84	84
	02/04/16	2 - 3	N	2.8 J	ND (0.12)	ND (0.14)	0.74 J	ND (0.13)	ND (0.14)	ND (0.13)	ND (0.13)	ND (0.27)	ND (0.095)	ND (0.15)	ND (2.5)	ND (0.16)	ND (0.084)	ND (1.1)	24 J	ND (0.8)	0.93	0.45	0.45
	02/04/16	5 - 6	N	2.7 J	0.69 J	ND (0.29)	ND (0.2)	0.3 J	ND (0.072)	ND (0.36)	ND (0.18)	ND (0.26)	ND (0.2)	ND (0.14)	ND (1)	ND (0.15)	ND (0.27)	1.2 J	29	ND (1.1)	1.7	0.56	0.56
	02/04/16	9 - 10	N	17	ND (0.75)	ND (0.11)	ND (0.15)	ND (0.072)	ND (0.23)	ND (0.14)	ND (0.15)	ND (0.084)	ND (0.09)	ND (0.092)	ND (1.3)	ND (0.17)	ND (0.12)	ND (0.61)	370	2.4 J	0.65	0.55	0.55

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC1-BCW30	02/04/16	0 - 0.5	N	5,200	460	24	22	34	ND (5.8)	32	49	ND (9.1)	12 J	ND (8.8)	ND (890)	13	0.5 J	7	14,000	980	100	140	140
	02/04/16	2 - 3	N	ND (0.77)	2.4 J	ND (0.22)	ND (0.46)	ND (0.63)	ND (0.32)	ND (0.49)	ND (0.64)	ND (0.93)	0.87 J	ND (0.23)	ND (7.8)	ND (0.46)	ND (1.1)	0.65 J	98	3.6 J	2.9	2.2	2.2
AOC1-BCW31	02/20/17	0 - 0.5	N	9.3 J	1.1 J	ND (0.13)	ND (0.11)	ND (0.19)	0.43 J	ND (0.18)	ND (0.33)	ND (0.22)	ND (0.11)	ND (0.092)	ND (3)	ND (0.095)	ND (0.11)	ND (0.27)	ND (88)	ND (1.3)	0.53	0.5	0.5
	02/20/17	2 - 3	N	ND (0.46)	ND (0.049)	ND (0.058)	ND (0.039)	ND (0.042)	ND (0.04)	ND (0.04)	ND (0.053)	ND (0.048)	ND (0.054)	ND (0.037)	ND (0.21)	ND (0.039)	ND (0.03)	ND (0.034)	ND (7.4)	ND (0.16)	ND (0.1)	ND (0.078)	ND (0.078)
AOC1-BCW32	02/20/17	0 - 0.5	N	20	2.9 J	0.32 J	ND (0.11)	ND (0.12)	1.2 J	ND (0.2)	ND (0.43)	ND (0.14)	ND (0.064)	0.27 J	14	ND (0.056)	ND (0.035)	ND (0.087)	190	5.5 J	1.7	1.9	1.9
	02/20/17	2 - 3	N	ND (2.9)	ND (0.38)	ND (0.083)	ND (0.076)	ND (0.054)	ND (0.076)	ND (0.098)	ND (0.12)	ND (0.062)	ND (0.06)	ND (0.043)	ND (0.58)	ND (0.045)	ND (0.035)	ND (0.023)	ND (40)	0.93 J	0.14	0.13	0.13
AOC1-BCW7	02/05/16	0 - 0.5	N	200	16	2.1 J	0.87 J	1.8 J	5.6 J	ND (3.2)	ND (2)	0.59 J	ND (0.35)	ND (0.19)	ND (37)	ND (0.39)	0.17 J	0.26 J	2,600	74	3.9	6.4	6.4
	02/05/16	2 - 3	N	100	8.2 J	1.1 J	0.85 J	0.94 J	2.9 J	ND (0.27)	1.2 J	ND (0.26)	ND (0.21)	ND (0.24)	ND (18)	ND (0.26)	ND (0.051)	0.19 J	1,100	32	2	3.1	3.1
	02/05/16	2 - 3	FD	90	ND (0.15)	ND (0.68)	0.54 J	ND (0.24)	ND (2.5)	ND (0.88)	1.3 J	ND (0.28)	ND (0.15)	ND (0.12)	ND (17)	ND (0.13)	ND (0.052)	ND (0.074)	870	30	1.5	2.5	2.5
	02/05/16	5 - 6	N	ND (2.7)	ND (0.094)	ND (0.12)	0.24 J	ND (0.081)	ND (0.074)	ND (0.075)	ND (0.071)	ND (0.094)	ND (0.095)	ND (0.038)	ND (0.28)	ND (0.041)	ND (0.068)	ND (0.052)	ND (23)	ND (0.6)	0.18	0.17	0.17
	02/05/16	9 - 10	N	5 J	ND (0.36)	ND (0.15)	ND (0.075)	ND (0.084)	ND (0.074)	ND (0.078)	ND (0.07)	ND (0.098)	ND (0.085)	ND (0.12)	ND (1)	ND (0.13)	ND (0.05)	ND (0.037)	54	1.5 J	0.24	0.23	0.23
AOC1-BCW8	02/04/16	0 - 0.5	N	730	55	ND (2.8)	ND (3.2)	ND (4.9)	15	ND (4.3)	5.9 J	ND (5.6)	ND (1.5)	ND (0.73)	ND (120)	ND (0.63)	ND (0.18)	ND (0.66)	9,900	170	11	21	21
	02/04/16	2 - 3	N	1,400	110	7.6 J	6.9 J	6.4 J	30	6 J	14	2.5 J	ND (1.8)	ND (2.9)	ND (180)	ND (3.7)	ND (0.33)	3 J	18,000	270	23	38	38
	02/04/16	5 - 6	N	240 J	53 J	8.8 J	ND (0.5) J	ND (0.55) J	6.7 J	ND (0.51) J	ND (1.2) J	ND (0.66) J	ND (0.23) J	ND (0.26) J	ND (81) J	ND (0.64) J	ND (0.072) J	ND (0.08) J	2,600 J	170 J	5.9	9	9
AOC1-BCW9	02/04/16	0 - 0.5	N	920	78	ND (6.7)	3.7 J	ND (11)	22	ND (9.7)	7.7 J	ND (1.8)	ND (0.23)	ND (1.2)	ND (220)	ND (1.9)	ND (0.13)	1.5 J	10,000	220	19	29	29
	02/04/16	2 - 3	N	17	ND (1.8)	ND (0.19)	ND (0.33)	ND (0.41)	ND (0.71)	ND (0.36)	ND (0.29)	ND (0.47)	ND (0.13)	ND (0.15)	ND (3.9)	ND (0.15)	ND (0.067)	ND (0.096)	150	5.1 J	0.55	0.68	0.68
AOC1-T1e	01/11/16	0 - 1	N	670	68	ND (4.3)	4 J	ND (3)	15	4 J	8.9 J	ND (3.5)	2.1 J	ND (0.8)	ND (84)	ND (0.31)	0.23 J	ND (0.12)	6,300	120	11	19	19
	01/11/16	2 - 3	N	29	ND (3)	ND (0.52)	ND (0.65)	ND (0.85)	ND (0.58)	ND (0.72)	ND (0.62)	ND (31)	ND (0.25)	ND (0.4)	2.7 J	ND (0.28)	ND (0.13)	ND (0.14)	190	ND (2.2)	2.4	2.6	2.6
	01/11/16	5 - 6	N	4.5 J	ND (0.79)	ND (0.14)	ND (0.26)	ND (0.18)	ND (0.3)	ND (0.16)	ND (0.31)	ND (0.21)	ND (0.16)	ND (0.095)	ND (0.18)	ND (0.074)	ND (0.062)	ND (0.1)	51	ND (1.2)	0.28	0.27	0.27
	01/11/16	9 - 10	N	28	ND (3.6)	ND (2)	ND (0.38)	ND (0.34)	ND (0.34)	ND (0.29)	ND (0.8)	ND (0.4)	ND (0.16)	ND (0.17)	ND (3.6)	ND (0.18)	ND (0.12)	ND (0.14)	240	ND (4.9)	0.67	0.86	0.86
AOC1-T1f	01/12/16	0 - 1	N	550	74	ND (5.5)	3.6 J	ND (11)	13	ND (9.1)	ND (0.54)	ND (12)	ND (0.76)	ND (0.66)	ND (140)	ND (0.69)	ND (0.11)	ND (0.51)	6,800	230	12	19	19
	01/12/16	2 - 3	N	2.5 J	ND (0.27)	ND (0.071)	ND (0.037)	ND (0.055)	ND (0.032)	ND (0.048)	ND (0.032)	ND (0.099)	ND (0.024)	ND (0.059)	ND (0.055)	ND (0.059)	ND (0.03)	ND (0.034)	29	ND (0.43)	0.099	0.092	0.092
	01/12/16	5 - 6	N	7.7 J	ND (0.12)	ND (0.15)	ND (0.25)	ND (0.4)	ND (0.22)	ND (0.29)	ND (0.17)	ND (0.2)	ND (0.19)	ND (0.14)	ND (0.17)	ND (0.15)	ND (0.2)	ND (0.76)	22 J	ND (0.5)	0.74	0.43	0.43
	01/12/16	9 - 10	N	9.6 J	ND (0.56)	0.74 J	ND (0.33)	ND (0.16)	ND (0.3)	ND (0.15)	ND (0.32)	ND (0.43)	ND (0.27)	ND (0.14)	ND (0.24)	ND (0.15)	ND (0.1)	ND (0.17)	30	ND (0.29)	0.45	0.43	0.43
AOC1-T1g	02/17/17	0 - 0.5	N	260 J	17	1.5 J	1.4 J	1.1 J	ND (6.1)	0.79 J	2.3 J	ND (0.38)	ND (0.56)	0.34 J	ND (36)	ND (0.5)	ND (0.067)	ND (0.06)	2,000 J	35	3.6	6.5	6.5
	02/17/17	0 - 0.5	FD	650 J	21	1.5 J	ND (1)	1.2 J	7.7 J	0.73 J	2.7 J	ND (0.31)	ND (0.55)	ND (0.46)	ND (28)	ND (0.57)	ND (0.066)	ND (0.34)	6,900 J	34	4.3	12	12
	02/17/17	2 - 3	N	590	78	6 J	2.7 J	3.6 J	16	2.7 J	5.6 J	1.1 J	1.5 J	ND (1.3)	ND (110)	ND (0.66)	ND (0.12)	ND (0.2)	7,300	250	11	19	19
	02/17/17	5 - 6	N	160	34	2.3 J	ND (0.37)	ND (0.7)	5.7 J	ND (0.37)	ND (1.4)	ND (0.58)	0.45 J	ND (0.29)	ND (44)	ND (0.42)	ND (0.05)	ND (0.045)	1,600	95	3.8	6	6
	02/17/17	9 - 10	N	91	9.1 J	ND (0.7)	ND (0.34)	ND (0.27)	2.7 J	ND (0.26)	0.78 J	ND (0.31)	ND (0.14)	ND (0.082)	ND (14)	ND (0.085)	ND (0.027)	ND (0.032)	610	25	1.3	2.4	2.4
AOC1-T2g	03/03/16	9 - 10	N	3,100 J	820 J	ND (31)	12 J	ND (21)	85	ND (89) J	16	ND (25)	3.6 J	ND (0.62)	ND (1,200)	ND (0.65)	ND (0.13)	ND (0.2)	35,000	4,200	89	130	130
	03/03/16	14 - 15	N	310	ND (0.22)	6.5 J	ND (0.91)	ND (0.46)	12 J	ND (17)	2.1 J	ND (0.53)	ND (0.42)	ND (0.73)	ND (220)	ND (0.76)	ND (0.22)	ND (0.16)	3,300	170	14	18	18
	03/03/16	19 - 20	N	59	11 J	ND (1.2)	ND (0.23)	ND (0.39)	2.1 J	ND (3.8)	ND (0.22)	ND (0.46)	ND (0.039)	ND (0.11)	ND (44)	ND (0.12)	ND (0.037)	0.14 J	640	43	3	3.6	3.6

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC1-T2h	03/04/16	0 - 1	N	930	150	ND (4.3)	3.4 J	ND (1.1)	23	ND (27)	5.9 J	ND (1.3)	ND (0.86)	ND (0.66)	ND (290) J	ND (0.59)	ND (0.13)	ND (0.18)	11,000	720 J	21	34	34
	03/04/16	2 - 3	N	570	56	5.3 J	2.8 J	ND (0.22)	14	1.6 J	5.8 J	ND (0.91)	ND (1.3)	ND (0.81)	ND (130)	1.1 J	0.2 J	ND (0.38)	6,700	200	12	19	19
	03/04/16	5 - 6	N	69	5.7 J	ND (0.19)	0.97 J	ND (0.12)	ND (1.9)	ND (0.26)	0.9 J	ND (0.14)	ND (0.23)	ND (0.18)	ND (11)	ND (0.19)	ND (0.035)	ND (0.17)	420	10 J	1.2	1.9	1.9
	03/04/16	9 - 10	N	460	44	6.4 J	ND (2.3)	ND (0.23)	13	ND (0.67)	4.7 J	ND (0.68)	ND (0.75)	ND (0.24)	ND (240)	0.86 J	ND (0.13)	0.23 J	5,400	250	16	21	21
AOC1-T2i	03/05/16	0 - 1	N	670	88	10 J	1.7 J	ND (0.62)	14	ND (20)	ND (2.6)	ND (0.72)	ND (0.12)	ND (0.42)	ND (220)	ND (0.13)	ND (0.044)	ND (0.22)	9,800	610	15	25	25
	03/05/16	2 - 3	N	420	37	3.4 J	2.8 J	4.1 J	13	1.1 J	4.5 J	ND (0.81)	ND (1.2)	ND (0.34)	ND (80)	ND (0.79)	ND (0.12)	ND (0.18)	5,800	150	7.9	14	14
	03/05/16	5 - 6	N	16	ND (1.6)	ND (0.3)	ND (0.15)	0.72 J	0.88 J	0.87 J	ND (0.36)	ND (0.72)	ND (0.08)	ND (0.091)	ND (6)	ND (0.096)	ND (0.029)	ND (0.14)	170	9.4 J	0.75	0.91	0.91
	03/05/16	9 - 10	N	910	110	ND (12)	ND (1.8)	ND (0.27)	21	1.1 J	4.7 J	1.3 J	1.2 J	ND (0.92)	ND (280)	ND (0.47)	ND (0.039)	0.28 J	10,000	730	20	32	32
AOC1-T2j	03/05/16	0 - 1	N	190	8.7 J	ND (1.5)	0.93 J	ND (0.31)	4.6 J	ND (0.3)	ND (1.4)	ND (0.36)	ND (0.25)	ND (0.098)	ND (21)	ND (0.26)	ND (0.052)	ND (0.1)	2,900	21 J	2.2	4.8	4.8
	03/05/16	2 - 3	N	380 J	37	3.6 J	2.4 J	ND (0.16)	11 J	1.9 J	4.7 J	ND (0.86)	1.5 J	ND (0.15)	ND (78)	ND (1.3)	0.28 J	ND (0.31)	4,000 J	120	8.6	13	13
	03/05/16	2 - 3	FD	170 J	16	ND (0.58)	1.1 J	2.4 J	6.4 J	1.2 J	2.6 J	0.79 J	ND (0.82)	ND (0.23)	ND (41)	0.68 J	ND (0.09)	ND (0.19)	1,400 J	33	4.6	6.5	6.5
	03/05/16	5 - 6	N	120	19	1.8 J	ND (0.38)	ND (0.6)	3.5 J	ND (0.59)	1.2 J	ND (0.7)	ND (0.12)	ND (0.097)	ND (42)	ND (0.22)	ND (0.11)	0.55 J	1,700	99	3.6	4.8	4.8
	03/05/16	9 - 10	N	17	1.9 J	ND (0.37)	ND (0.16)	ND (0.12)	0.56 J	ND (0.4)	ND (0.25)	ND (0.14)	ND (0.045)	ND (0.092)	ND (5.2)	ND (0.097)	ND (0.065)	ND (0.33)	190	10 J	0.65	0.71	0.71
AOC1-T5D	01/12/16	0 - 1	N	280	30	ND (2.2)	ND (1.4)	ND (1.2)	ND (9.1)	ND (1.1)	3.7 J	ND (1.4)	ND (0.19)	ND (0.6)	ND (96)	ND (1.3)	ND (0.1)	ND (0.54)	2,700	94	7.4	10	10
	01/12/16	2 - 3	N	21,000 J	2,800	130 J	79	360	880	ND (66)	190	ND (83)	ND (40) *	ND (22)	ND (6,300)	ND (24)	4.9 J	12	270,000	11,000 J	520	830	830
	01/12/16	2 - 3	FD	44,000 J	3,700	ND (250) J	ND (96)	360	1,200	89	260	ND (52)	ND (23) *	ND (2.9)	ND (5,900)	68	6.2	14	340,000	18,000 J	600	1,100	1,100
	01/12/16	5 - 6	N	2,500	420	39	5.9 J	ND (9.8)	57	ND (9.1)	ND (13)	ND (11)	ND (2.1)	ND (0.41)	ND (860)	ND (1)	0.59 J	ND (0.34)	28,000	2,200	58	92	92
	01/12/16	9 - 10	N	500	86	ND (4.3)	ND (2.8)	ND (0.66)	15	ND (0.61)	ND (3.6)	ND (0.77)	ND (0.77)	ND (0.28)	ND (230)	ND (0.3)	ND (0.11)	ND (0.22)	5,000	290	15	21	21
	01/12/16	14 - 15	N	1,700	120	10 J	7.7 J	13	38	ND (2.6)	15	ND (2.3)	3.2 J	ND (1.3)	ND (340)	ND (1.4)	ND (0.52)	0.73 J	22,000	380	31	53	53
	01/12/16	19 - 20	N	590	130	20	4 J	ND (7.1)	22	ND (6.6)	7.1 J	ND (8.2)	ND (0.27)	ND (0.3)	ND (370)	ND (0.32)	ND (0.083)	ND (0.12)	5,300	410	24	32	32
	01/12/16	19 - 20	FD	620	120	18	ND (3.5)	ND (5.7)	24	ND (5.3)	7 J	ND (6.6)	ND (0.45)	ND (0.15)	ND (380)	ND (0.45)	ND (0.087)	ND (0.067)	5,400	400	24	33	33
AOC1-T6D	02/09/16	0 - 0.5	N	240	13	1.4 J	ND (0.84)	ND (0.051)	3.8 J	ND (0.34)	1.7 J	0.34 J	ND (0.49)	ND (0.23)	ND (58)	ND (0.27)	ND (0.4)	0.31 J	2,100	48	4.7	7.3	7.3
	02/09/16	2 - 3	N	17	0.66 J	ND (0.25)	ND (0.18)	ND (0.089)	0.49 J	ND (0.087)	ND (0.11)	ND (0.1)	ND (0.17)	ND (0.076)	ND (1.7)	ND (0.14)	ND (3.5)	ND (0.2)	100	1.5 J	2.2	2.2	2.2
	02/09/16	5 - 6	N	5.1 J	ND (0.24)	ND (0.08)	ND (0.046)	ND (0.059)	ND (0.15)	ND (0.048)	ND (0.14)	ND (0.069)	ND (0.04)	ND (0.062)	ND (0.49)	ND (0.056)	ND (2.6)	ND (0.14)	41	ND (0.32)	1.5	1.5	1.5
	02/09/16	9 - 10	N	ND (0.74)	ND (0.093)	0.11 J	ND (0.071)	ND (0.066)	ND (0.023)	ND (0.051)	ND (0.022)	ND (0.061)	ND (0.063)	ND (0.029)	ND (0.18)	ND (0.03)	ND (0.94)	0.17 J	ND (4.5)	ND (0.13)	0.71	0.55	0.55
	02/09/16	9 - 10	FD	ND (1.1)	ND (0.32)	0.27 J	ND (0.087)	ND (0.092)	ND (0.064)	ND (0.09)	ND (0.12)	ND (0.37)	ND (0.067)	ND (0.14)	ND (0.096)	ND (0.15)	ND (2.4)	ND (0.25)	ND (4.6)	ND (0.18)	1.5	1.3	1.3
AOC1-T7	02/19/17	0 - 0.5	N	210 J	21	ND (1.5)	0.65 J	0.81 J	4 J	ND (0.44)	ND (0.66)	ND (0.43)	ND (0.32)	ND (0.088)	ND (37)	ND (0.069)	ND (0.13)	ND (0.038)	2,100 J	68 J	3	5.7	5.7
	02/19/17	2 - 3	N	310	34	2.5 J	1.9 J	2.2 J	10 J	ND (1.6)	4.1 J	ND (0.63)	ND (0.65)	0.6 J	ND (56)	ND (0.64)	ND (0.15)	ND (0.094)	3,600	65	5.6	9.8	9.8
	02/19/17	5 - 6	N	690	150	8.6 J	1.1 J	ND (1.4)	19	ND (0.64)	2.5 J	ND (0.93)	ND (0.22)	ND (0.16)	ND (190)	ND (0.17)	ND (0.051)	ND (0.1)	7,600	610	14	23	23
	02/19/17	9 - 10	N	93	15	ND (1)	ND (0.15)	0.38 J	3.1 J	ND (0.26)	ND (0.63)	ND (0.11)	ND (0.099)	ND (0.078)	ND (26)	ND (0.081)	ND (0.041)	ND (0.045)	1,000	51	1.9	3.2	3.2

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC1-T8	02/18/17	0 - 0.5	N	360	48	3.4 J	2.2 J	2.2 J	11 J	ND (1.2)	4.9 J	0.69 J	ND (1.2)	1 J	ND (110)	ND (0.64)	ND (0.17)	0.25 J	4,000	130	9.2	14	14
	02/18/17	2 - 3	N	330	46	3.4 J	2.4 J	2.8 J	12 J	ND (1.1)	4.7 J	0.75 J	ND (1.4)	ND (0.79)	ND (100)	ND (0.86)	ND (0.072)	ND (0.25)	3,100	110	8.6	13	13
	02/18/17	5 - 6	N	80	4.3 J	0.83 J	ND (0.26)	ND (0.18)	1.5 J	ND (0.33)	ND (0.13)	0.36 J	ND (0.2)	ND (0.19)	ND (7.8)	ND (0.047)	ND (0.025)	ND (0.036)	470	14 J	0.82	1.7	1.7
	02/18/17	9 - 10	N	49	5.8 J	0.69 J	ND (0.15)	ND (0.11)	1.3 J	ND (0.069)	ND (0.4)	ND (0.12)	ND (0.18)	ND (0.082)	ND (14)	ND (0.085)	ND (0.046)	ND (0.042)	590	18 J	1.1	1.7	1.7
	02/18/17	9 - 10	FD	110	14	ND (0.86)	ND (0.2)	ND (0.34)	3.1 J	ND (0.45)	0.92 J	ND (0.13)	0.17 J	ND (0.089)	ND (33)	ND (0.093)	ND (0.029)	ND (0.024)	1,300	39	2.5	4	4
AOC4-GB10	02/10/10	0 - 0.5	N	4,200	140	14	16	ND (21)	88	ND (13)	29	ND (12.5)	ND (12.5) *	ND (12.5)	ND (12.5)	6.5 J	ND (5) *	ND (5)	52,000	260	37	87	87
AOC4-GB11	02/10/10	0 - 0.5	N	4,700	180	ND (12.5)	ND (13)	ND (28)	110	ND (17)	34	ND (12.5)	ND (12.5) *	3.7 J	ND (14)	6.7 J	1.2 J	ND (5)	33,000	610	35	87	87
	02/10/10	0 - 0.5	FD	5,300	230	ND (12.5)	21	ND (43)	160	ND (23)	39	ND (12.5)	ND (12.5) *	ND (12.5)	22	14	1.7 J	ND (5)	30,000	440	48	110	110
AOC4-GB12	02/10/10	0 - 0.5	N	490	26	ND (12.5)	5.5 J	ND (12.5)	14	ND (12.5)	ND (12.5)	ND (12.5)	ND (12.5) *	ND (12.5)	ND (12.5)	1.4 J	ND (5) *	ND (5)	4,400	66	18	21	21
Old Well-BCW-1	09/11/13	7 - 8	N	7,000	ND (1.2)	170	21	64	200	ND (280)	40	ND (2)	8.8 J	ND (0.42)	ND (4,000)	ND (4.8)	ND (0.17)	0.46 J	53,000	8,400	250	350	350
Old Well-BCW-2	09/11/13	4 - 5	N	8,300	ND (1.9)	170	50	110	380	ND (450)	97	ND (5.6)	18	ND (2.4)	63	ND (10)	ND (0.23)	1.6	100,000	11,000	100	230	230
PA-14	01/27/16	0 - 1	N	660 J	49 J	4.1 J	7.1 J	ND (3.2) J	20 J	4.3 J	14 J	ND (0.51) J	4.9 J	ND (1.4) J	ND (64) J	2.1 J	ND (0.53) J	3.2 J	5,300 J	92 J	18	23	23
PA-15	01/27/16	0 - 1	N	2,600 J	320 J	15 J	21 J	19 J	85 J	25 J	43 J	4.5 J	10 J	4 J	ND (340) J	6.7 J	ND (0.93) J	4.2 J	22,000 J	370 J	58	86	86
PA-16	01/27/16	0 - 1	N	880 J	74 J	5.1 J	7.2 J	6 J	24 J	7.1 J	12 J	1.6 J	ND (0.95) J	2.1 J	ND (110) J	2.3 J	ND (0.63) J	ND (1.2) J	7,300 J	140 J	15	25	25
SD-14	01/11/16	0 - 1	N	5,500	340	45	49	ND (1.4)	170	15	85	9 J	24	ND (1.4)	ND (1,200)	9.1 J	3.1 J	2.7 J	40,000	1,100	130	190	190
	01/11/16	2 - 3	N	3,100	240	ND (9.4)	14	ND (1.9)	71	ND (5.2)	29	ND (2.3)	ND (5.8) *	ND (0.91)	ND (490)	4.2 J	ND (1.4)	ND (1.4)	25,000	1,100	46	83	83
	01/11/16	5 - 6	N	1,500	ND (27)	ND (34)	ND (3.8)	ND (7)	35	ND (8.8)	12 J	ND (4.6)	ND (4.5)	ND (0.76)	ND (190)	ND (1.7)	ND (1.2)	ND (0.68)	20,000	400	20	40	40
	01/11/16	9 - 10	N	6.3 J	ND (0.59)	ND (0.3)	ND (0.19)	ND (0.16)	ND (0.18)	ND (0.15)	ND (0.17)	ND (0.19)	ND (0.14)	ND (0.045)	ND (0.81)	ND (0.049)	ND (0.094)	ND (0.32)	55	ND (1.3)	0.4	0.32	0.32
SD-15	01/12/16	0 - 0.5	N	1,300	120	11 J	7.1 J	ND (0.71)	36	2.9 J	14	ND (0.83)	3.6 J	ND (0.9)	ND (240)	2.5 J	ND (0.56)	ND (1)	13,000	390	25	41	41
	01/12/16	2 - 3	N	50	5.1 J	ND (0.38)	ND (0.26)	0.61 J	ND (1.4)	ND (1.6)	ND (0.43)	ND (0.15)	ND (0.065)	ND (0.091)	ND (18)	ND (0.098)	ND (0.099)	ND (0.2)	450	13 J	1.5	2	2
	01/12/16	5 - 6	N	51	3.7 J	ND (0.5)	ND (0.34)	ND (0.28)	ND (1.4)	ND (1.2)	ND (0.22)	ND (0.33)	ND (0.11)	ND (0.071)	ND (12)	ND (0.12)	ND (0.043)	ND (0.085)	430	7.2 J	1	1.6	1.6
	01/12/16	9 - 10	N	8.4 J	ND (0.59)	ND (0.29)	ND (0.15)	ND (0.14)	ND (0.23)	ND (0.13)	ND (0.38)	ND (0.17)	ND (0.11)	ND (0.076)	ND (0.76)	ND (0.041)	ND (0.04)	ND (0.38)	36	0.67 J	0.39	0.3	0.3
SD-16	01/12/16	0 - 0.5	N	6.2 J	ND (0.52)	ND (0.19)	ND (0.1)	ND (0.11)	ND (0.3)	ND (0.098)	ND (0.097)	ND (0.12)	ND (0.069)	ND (0.052)	1.1 J	ND (0.056)	ND (0.041)	ND (0.3)	44	1.2 J	0.39	0.31	0.31
	01/12/16	2 - 3	N	1.6 J	ND (0.2)	ND (0.071)	ND (0.097)	ND (0.04)	ND (0.096)	ND (0.037)	ND (0.091)	ND (0.047)	ND (0.065)	ND (0.073)	0.26 J	ND (0.078)	ND (0.024)	ND (0.18)	7.5 J	ND (0.21)	0.22	0.13	0.13
	01/12/16	5 - 6	N	0.57 J	ND (0.12)	ND (0.075)	ND (0.04)	ND (0.07)	ND (0.04)	ND (0.065)	ND (0.038)	ND (0.092)	ND (0.051)	ND (0.059)	ND (0.11)	ND (0.064)	ND (0.059)	0.27 J	2.5 J	0.15 J	0.38	0.12	0.12
	01/12/16	9 - 10	N	0.32 J	ND (0.11)	ND (0.15)	ND (0.039)	ND (0.035)	ND (0.038)	ND (0.043)	ND (0.011)	ND (0.037)	ND (0.029)	ND (0.063)	ND (0.22)	ND (0.068)	ND (0.036)	ND (0.095)	ND (1.5)	ND (0.092)	0.14	0.074	0.074
SD-25	03/10/16	0 - 1	N	140 J	9.5 J	0.82 J	ND (0.61) J	ND (1.4) J	3.5 J	1.7 J	2 J	ND (0.28) J	ND (0.24) J	ND (0.97) J	ND (9.4) J	2.4 J	ND (0.099) J	1.7 J	990 J	13 J	5.6	4.2	4.2
SD-26	03/10/16	0 - 1	N	1,400 J	99 J	6.9 J	14 J	8.3 J	36 J	8.2 J	21 J	2.6 J	6.2 J	2.2 J	ND (93) J	4.2 J	ND (0.68) J	ND (2.4) J	13,000 J	170 J	26	41	41
TCS-4	03/25/14	59 - 60	N	4,200	740	53	8.1 J	ND (21)	79	ND (19)	16	ND (25)	2.3 J	ND (1.5)	ND (1,400)	ND (1.6)	ND (0.09)	ND (0.15)	46,000	3,800	96	150	150
	03/25/14	113	N	1,000	200	20	ND (4.5)	ND (5.7)	26	ND (5.3)	10 J	ND (6.7)	ND (1.2)	ND (0.87)	ND (490)	18	ND (0.45)	ND (0.3)	11,000	920	50	51	51

TABLE 3-2j
Sample Results: Dioxins and Furans
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
TCS4-E	03/01/16	4 - 5	N	10,000 J	ND (550)	ND (650) J	54 J	230	630	ND (770)	110	ND (16)	26	ND (1.1)	ND (9,100)	ND (5.2)	3.2 J	1.9 J	140,000 J	19,000	600	780	780
	03/01/16	4 - 5	FD	19,000 J	ND (2.5)	430 J	ND (170) J	250	680	ND (810)	ND (160)	ND (17)	19	ND (1.1)	ND (8,600)	ND (4.6)	2.4 J	1.3 J	220,000 J	18,000	590	870	870
	03/01/16	5 - 6	N	150	ND (0.24)	ND (1.1)	ND (0.3)	1.2 J	ND (3.2)	ND (3.3)	ND (1.1)	ND (0.41)	ND (0.13)	ND (0.22)	ND (38)	ND (0.23)	0.23 J	ND (0.065)	1,000	35	3	4.6	4.6
TCS4-N	03/01/16	4 - 5	N	2,600	ND (0.45)	36	9.5 J	20	70	ND (90)	15	ND (5.6)	3.1 J	ND (0.81)	ND (1,100)	ND (0.86)	ND (0.32)	0.46 J	26,000	1,800	74	110	110
	03/01/16	5 - 6	N	4,200	ND (750)	96	9.6 J	ND (12)	140	ND (180)	23	ND (14)	3.6 J	ND (0.58)	ND (2,300)	ND (2.9)	0.34 J	ND (0.49)	48,000	4,300	150	210	210
TCS4-S	03/01/16	4 - 5	N	3,300	ND (0.47)	77	18	41	120	ND (160)	36	ND (2.8)	9 J	ND (0.88)	ND (1,800)	ND (1.5)	ND (0.37)	0.48 J	39,000	3,300	130	180	180
	03/01/16	5 - 6	N	940	130	21	1.8 J	ND (0.32)	23	ND (37)	4.3 J	ND (0.38)	0.8 J	ND (1.2)	ND (530)	ND (1.3)	ND (0.23)	ND (0.066)	10,000	1,100	34	47	47

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the Interim Screening Level are circled.

‡	This location is in an area where soil is transitioning into sediment.
--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:
TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-2k

Sample Results: Asbestos
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Asbestos PLM/BULK [1]	Asbestos CARB435/ PLM (%) [2]	Asbestos TEM (%) [3]
Category 1						
AOC4-1	10/14/08	0 - 0.5	N	Not Present	---	---
	10/14/08	0.5 - 1	N	Not Present	---	---
	10/14/08	2 - 3	N	Not Present	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

---	not analyzed
ft bgs	feet below ground surface
FD	field duplicate
N	primary sample

1 Polarized light microscopy of bulk samples
2 California Air Resource Board Method 435 / polarized light microscopy of bulk samples
3 Transmission electron microscopy

TABLE 3-2I

Constituent Concentrations in Soil Compared to Screening Values
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	63	168 / 180 (93%)	600	73	(5.98)	48	(16)	NA	(NE)	NA	(NA)	NA	(NE)	48	(16)
TEQ Human	ng/kg	63	168 / 180 (93%)	1,100	87	(5.58)	NA	(NE)	30	(50)	NA	(NA)	6	(220)	30	(50)
TEQ Mammals	ng/kg	63	168 / 180 (93%)	1,100	87	(5.58)	87	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	87	(5.58)
Metals																
Antimony	mg/kg	97	7 / 364 (1.9%)	10	NA	(NE)	7	(0.285)	0	(31)	NA	(NA)	0	(470)	7	(0.285)
Arsenic	mg/kg	97	331 / 364 (91%)	19	4	(11)	4	(11.4)	4	(0.11) *	NA	(NA)	4	(0.36) *	4	(11)
Barium	mg/kg	106	383 / 383 (100%)	1,580	6	(410)	6	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	6	(410)
Beryllium	mg/kg	97	2 / 364 (0.55%)	1	1	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	1	(0.672)
Cadmium	mg/kg	97	19 / 364 (5.2%)	1.4	8	(1.1)	8	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	8	(1.1)
Chromium, Hexavalent	mg/kg	112	112 / 424 (26%)	80	37	(0.83)	0	(139.6)	37	(0.3)	NA	(NA)	11	(6.3)	37	(0.83)
Chromium, Hexavalent-SPLP	mg/L	1	2 / 2 (100%)	0.0188	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Chromium, total	mg/kg	108	420 / 420 (100%)	4,400	58	(39.8)	58	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	58	(39.8)
Chromium-SPLP	mg/L	1	2 / 2 (100%)	0.238	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Cobalt	mg/kg	97	364 / 364 (100%)	14	1	(12.7)	1	(13)	0	(23)	NA	(NA)	0	(350)	1	(12.7)
Copper	mg/kg	108	419 / 420 (100%)	170	43	(16.8)	19	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	43	(16.8)
Lead	mg/kg	106	364 / 383 (95%)	120	58	(8.39)	58	(0.0166) *	1	(80)	NA	(NA)	0	(320)	58	(8.39)
Mercury	mg/kg	97	21 / 363 (5.8%)	0.26	NA	(NE)	21	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	21	(0.0125)
Molybdenum	mg/kg	106	52 / 383 (14%)	18	34	(1.37)	21	(2.25)	0	(390)	NA	(NA)	0	(5,800)	34	(1.37)
Nickel	mg/kg	108	420 / 420 (100%)	35.2	4	(27.3)	4	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	4	(27.3)
Selenium	mg/kg	97	3 / 364 (0.82%)	2.1	1	(1.47)	1	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	1	(1.47)
Silver	mg/kg	97	2 / 364 (0.55%)	1	NA	(NE)	0	(5.15)	0	(390)	NA	(NA)	0	(1,500)	0	(5.15)
Thallium	mg/kg	97	7 / 364 (1.9%)	10	NA	(NE)	5	(2.32)	7	(0.78)	NA	(NA)	0	(12)	7	(0.78)
Vanadium	mg/kg	106	383 / 383 (100%)	70	3	(52.2)	3	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	3	(52.2)
Zinc	mg/kg	108	420 / 420 (100%)	660	56	(58)	56	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	56	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	19	28 / 28 (100%)	14,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	19	28 / 28 (100%)	67,000	1	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	1	(66,500)
Iron	mg/kg	28	47 / 47 (100%)	29,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	19	28 / 28 (100%)	11,000	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	28	47 / 47 (100%)	720	2	(402)	2	(220)	0	(1,800)	NA	(NA)	0	(6,900)	2	(402)
Manganese Extractable	mg/kg	9	19 / 19 (100%)	224	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Potassium	mg/kg	19	28 / 28 (100%)	4,000	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	19	24 / 28 (86%)	2,700	1	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	1	(2,070)
Cyanide	mg/kg	17	0 / 26 (0%)	ND (6.69) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Semivolatile Organic Compounds																
bis (2-ethylhexyl) phthalate	µg/kg	38	3 / 119 (2.5%)	2,000	NA	(NE)	0	(2,870)	0	(39,000)	NA	(NA)	0	(160,000)	0	(2,870)
Volatile Organic Compounds																
Methyl acetate	µg/kg	16	2 / 16 (13%)	12	NA	(NE)	NA	(NE)	0	(24,000)	NA	(NA)	0	(130,000,000)	0	(24,000,000)
Polycyclic Aromatic Hydrocarbons																
1-Methyl naphthalene	µg/kg	66	4 / 242 (1.7%)	6.2	NA	(NE)	NA	(NE)	0	(18,000)	NA	(NA)	0	(73,000)	0	(18,000)
2-Methyl naphthalene	µg/kg	69	5 / 245 (2.0%)	6.2	NA	(NE)	NA	(NE)	0	(240,000)	NA	(NA)	0	(3,000,000)	0	(240,000)

TABLE 3-2I

Constituent Concentrations in Soil Compared to Screening Values
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	µg/kg	69	4 / 245 (1.6%)	6.2	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Acenaphthylene	µg/kg	69	4 / 245 (1.6%)	6.2	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	69	12 / 245 (4.9%)	32	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Benzo (a) anthracene	µg/kg	69	41 / 245 (17%)	380	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	69	42 / 245 (17%)	350	NA	(NE)	NA	(NE)	2	(110)	NA	(NA)	0	(2,100)	2	(110)
Benzo (b) fluoranthene	µg/kg	69	54 / 245 (22%)	720	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (ghi) perylene	µg/kg	69	40 / 245 (16%)	180	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	69	37 / 245 (15%)	240	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	69	53 / 245 (22%)	400	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	69	11 / 245 (4.5%)	37	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Fluoranthene	µg/kg	69	61 / 245 (25%)	560	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Fluorene	µg/kg	69	5 / 245 (2.0%)	7.9	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	69	35 / 245 (14%)	180	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Naphthalene	µg/kg	69	5 / 245 (2.0%)	6.2	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	69	39 / 245 (16%)	150	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	69	56 / 245 (23%)	560	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	69	245 / 245 (100%)	182	7	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	69	245 / 245 (100%)	2,866	14	(267.4)	3	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	3	(1,160)
B(a)P Equivalent	µg/kg	1	1 / 3 (33%)	19	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
		69	69 / 245 (28%)	490	14	(55)			5	(110)			0	(2,100)	5	(110)
Polychlorinated biphenyls																
Aroclor 1254	µg/kg	63	27 / 151 (18%)	1,000	NA	(NE)	NA	(NE)	10	(240)	NA	(NA)	1	(970)	10	(240)
Aroclor 1260	µg/kg	63	6 / 151 (4.0%)	320	NA	(NE)	NA	(NE)	1	(240)	NA	(NA)	0	(990)	1	(240)
Total PCBs	µg/kg	63	27 / 151 (18%)	1,337	NA	(NE)	11	(204)	10	(230)	NA	(NA)	1	(940)	11	(204)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	43	11 / 135 (8.1%)	300	NA	(NE)	NA	(NE)	1	(230)	1	(230)	0	(1,100)	1	(230)
TPH as motor oil	mg/kg	43	59 / 135 (44%)	3,700	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-2I

Constituent Concentrations in Soil Compared to Screening Values
AOC 1 – Area around Former Percolation Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-3a

Sample Results: Metals
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC4-19	11/20/15	0 - 1	N	ND (2) J*	7.9	470	ND (1) *	ND (1) J	---	46	7.9	13	7.6	ND (0.1) *	ND (1) J	29 J	ND (1) J	ND (1) J	ND (2) J*	36	49
	11/20/15	2 - 3	N	ND (2) *	8.5	500	ND (1) *	ND (1)	---	28	7.3	12	5.9	ND (0.1) *	ND (1)	26	ND (1)	ND (1)	ND (2) *	36	34
AOC4-20	11/20/15	0 - 1	N	ND (2) *	7.1	380	ND (1) *	ND (1)	---	26	7.1	12	8.8	ND (0.1) *	ND (1)	28	ND (1)	ND (1)	ND (2) *	33	41
AOC4-21	11/20/15	0 - 1	N	ND (2) *	3.4	160	ND (1) *	ND (1)	---	16	6.4	11	7.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	23	34
AOC4-22	11/20/15	0 - 1	N	ND (2) *	4	170	ND (1) *	ND (1)	---	16	6.3	15	8.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	22	40
AOC4-A01	03/02/10	0	N	ND (2.3) J*	ND (1.1)	230 J	ND (1.1) *	ND (1.1) *	0.49	73 J	17	33	5.3	ND (0.11) *	ND (1.1) J	55 J	ND (1.1) J	ND (1.1)	ND (2.3) *	95 J	52 J
AOC4-A01minus	03/02/10	0	N	ND (2.2) *	2.5	330	ND (1.1) *	ND (1.1) *	0.5	24	5.3	14	11	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2) *	26	46
AOC4-A01S	04/21/10	0	N	ND (2.1) *	4.3	360	ND (1.1) *	ND (1.1) *	ND (0.43)	49	12	56	2.7	ND (0.11) *	ND (1.1)	30	ND (1.1)	ND (1.1)	ND (2.1) *	56	49
AOC4-A02	02/24/10	0	N	ND (2.3) *	3.6	350	ND (1.1) *	ND (1.1) *	ND (0.45)	21	5.8	36	8.4	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.3) *	32	38
AOC4-A03	03/01/10	0	N	ND (2.4) *	5	270 J	ND (1.2) *	ND (1.2) *	ND (0.47)	41	9.3	24	6.3 J	ND (0.11) *	ND (1.2)	34	ND (1.2)	ND (1.2)	ND (2.4) *	50	53
	03/01/10	0	FD	ND (2.4) *	4.2	220 J	ND (1.2) *	ND (1.2) *	ND (0.47)	40	9	24	8.2 J	ND (0.11) *	ND (1.2)	34	ND (1.2)	ND (1.2)	ND (2.4) *	46	52
AOC4-A04	07/27/10	0	N	ND (2) *	1.2	140	ND (1) *	ND (1)	ND (0.4)	13	5.1	7.4	7.6	ND (0.099) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	25	35
AOC4-A05	07/26/10	0	N	ND (2) *	1.4	130	ND (1) *	ND (1)	ND (0.4)	11	4.4	7.8	7.4	ND (0.1) *	ND (1)	9.8	ND (1)	ND (1)	ND (2) *	19	32
AOC4-A06	07/26/10	0	N	ND (2) *	ND (1)	150	ND (1) *	ND (1)	ND (0.4)	22	6.2	7.8	6.8	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	29	33
AOC4-A06_A07	08/10/10	0	N	ND (2) J*	ND (1)	180 J	ND (1) *	ND (1)	ND (0.4)	31 J	8.8	10	8.3	ND (0.098) *	ND (1) J	26 J	ND (1)	ND (1)	ND (2) J*	35 J	40 J
AOC4-B01	03/03/10	0	N	ND (2.4) *	5.5	450	ND (1.2) *	ND (1.2) *	ND (0.47)	26	9.3	17	2.4	ND (0.11) *	ND (1.2)	22	ND (1.2)	ND (1.2)	ND (2.4) *	60	47
AOC4-B01S	04/21/10	0	N	ND (2.2) *	4.7	250	ND (1.1) *	ND (1.1) *	ND (0.44)	24	8	24	8.4	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2) *	35	45
	04/21/10	0	FD	ND (2.2) *	4.9	240	ND (1.1) *	ND (1.1) *	ND (0.44)	24	8.3	25	8.6	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2) *	34	46
AOC4-B02	03/17/10	0	N	ND (11) J*	ND (5.4) J	770 J	ND (5.4) J*	ND (5.4) J*	1.9	58 J	12 J	81 J	44 J	0.29	ND (5.4) J*	36 J	ND (5.4) J*	ND (5.4) J*	ND (11) J*	65 J	160 J
AOC4-B03	03/03/10	0	N	2.5	4.2	1,300	ND (1.1) *	1.7	9.7	100	5.4	790	220	0.52	ND (1.1)	24	ND (1.1)	ND (1.1)	ND (2.2) *	26	410
AOC4-B04	03/12/10	0	N	ND (2.2) J*	ND (1.1)	390 J	ND (1.1) *	ND (1.1) *	0.67	35 J	9.4	7.8	4	ND (0.11) *	ND (1.1) J	33 J	ND (1.1)	ND (1.1)	ND (2.2) *	38 J	46 J
AOC4-B05	07/26/10	0	N	ND (2) *	ND (1)	180	ND (1) *	ND (1)	ND (0.4)	22	6.4	8.4	7.9	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	30	36
AOC4-B06	07/26/10	0	N	ND (2) *	ND (1)	190	ND (1) *	ND (1)	ND (0.4)	24	6.4	9	9.7	ND (0.099) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	31	40
AOC4-B06_B07	08/10/10	0	N	ND (2) *	ND (1)	220	ND (1) *	ND (1)	ND (0.4)	53	13	17	6.9	ND (0.1) *	ND (1)	40	ND (1)	ND (1)	ND (2) *	53	45
AOC4-BCW1	01/06/16	0 - 1	N	ND (2.1) *	ND (1)	87	ND (1) *	ND (1)	ND (0.21)	14	7.1	9.8	2	ND (0.1) *	ND (1)	9.8	ND (1)	ND (1)	ND (2.1) *	29	30
	01/06/16	2 - 3	N	ND (2.1) *	ND (1)	82	ND (1) *	ND (1)	ND (0.2)	11	7	6.2	1.6	ND (0.1) *	ND (1)	7.8	ND (1)	ND (1)	ND (2.1) *	26	27
	01/06/16	5 - 6	N	ND (2) *	ND (1)	85	ND (1) *	ND (1)	ND (0.2)	11	6.1	6.1	1	ND (0.1) *	ND (1)	7.2	ND (1)	ND (1)	ND (2) *	24	26
	01/06/16	9 - 10	N	ND (2.1) *	1.2	100	ND (1) *	ND (1)	ND (0.21)	30	9.9	7	1.5	ND (0.1) *	ND (1)	23	ND (1)	ND (1)	ND (2.1) *	37	33
AOC4-BCW2	01/06/16	0 - 1	N	ND (2.1) *	1.4	71	ND (1) *	ND (1)	ND (0.21)	14	6.2	8.1	1.5	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	25	29
	01/06/16	2 - 3	N	ND (2.1) *	ND (1)	99	ND (1) *	ND (1)	ND (0.21)	13	6.2	6.8	1.3	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	22	28
	01/06/16	5 - 6	N	ND (2) J*	1.1	95 J	ND (1) *	ND (1) J	ND (0.21)	13	7.6	7.9	1.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) J*	30	32 J
	01/06/16	9 - 10	N	ND (2.1) *	ND (1)	110	ND (1) *	ND (1)	ND (0.2)	13	6.7	7.3	1.1	ND (0.1) *	ND (1)	8.6 J	ND (1)	ND (1)	ND (2.1) *	24	34
	01/06/16	9 - 10	FD	ND (2) *	ND (1)	96	ND (1) *	ND (1)	ND (0.2)	11	6	7.4	1.5	ND (0.1) *	ND (1)	6.9 J	ND (1)	ND (1)	ND (2) *	21	30

TABLE 3-3a

Sample Results: Metals
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC4-BCW3	01/06/16	0 - 1	N	ND (2.2) *	1.8	92 J	ND (1.1) *	ND (1.1) *	0.4 J	18 J	6.1 J	13 J	4.6 J	ND (0.11) *	ND (1.1)	11 J	ND (1.1)	ND (1.1)	ND (2.2) *	24 J	32 J
	01/06/16	0 - 1	FD	ND (2.1) *	2.3	170 J	ND (1.1) *	ND (1.1) *	2.3 J	48 J	8.8 J	85 J	11 J	ND (0.11) *	ND (1.1)	21 J	ND (1.1)	ND (1.1)	ND (2.1) *	31 J	58 J
	01/06/16	2 - 3	N	ND (2.1) *	ND (1.1)	98	ND (1.1) *	ND (1.1) *	ND (0.21)	11	6.7	9	1.3	ND (0.11) *	ND (1.1)	8.4	ND (1.1)	ND (1.1)	ND (2.1) *	27	31
	01/06/16	5 - 6	N	ND (2.1) *	1.2	92	ND (1.1) *	ND (1.1) *	ND (0.21)	28	8.6	12	1.6	ND (0.1) *	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.1) *	28	31
	01/06/16	9 - 10	N	ND (2.1) *	1.1	57	ND (1.1) *	ND (1.1) *	ND (0.21)	9.4	5	4.9	1.2	ND (0.11) *	ND (1.1)	7	ND (1.1)	ND (1.1)	ND (2.1) *	18	22
AOC4-BCW4	01/06/16	0 - 1	N	ND (2.1) J*	1.2	100 J	ND (1) *	ND (1)	ND (0.21)	28	11	9.8	2.4	ND (0.1) *	ND (1)	21	ND (1) J	ND (1)	ND (2.1) *	41	39
	01/06/16	2 - 3	N	ND (2) *	ND (1)	71	ND (1) *	ND (1)	ND (0.2)	17	6.6	6.7	1.3	ND (0.1) *	ND (1)	9.4	ND (1)	ND (1)	ND (2) *	24	31
	01/06/16	5 - 6	N	ND (2.1) *	1.2	82	ND (1.1) *	ND (1.1) *	ND (0.21)	15	8.2	10	1.7	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	34	32
	01/06/16	9 - 10	N	ND (2.1) *	1.2	77	ND (1.1) *	ND (1.1) *	ND (0.21)	12	6.2	9.2	1.4	ND (0.11) *	ND (1.1)	8.9	ND (1.1)	ND (1.1)	ND (2.1) *	25	25
AOC4-BCW5	01/06/16	0 - 1	N	ND (2.2) *	1.9	86	ND (1.1) *	ND (1.1) *	ND (0.22)	18	6.8	12	2.2	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2) *	26	31
	01/06/16	0 - 1	FD	ND (2.2) *	1.8	78	ND (1.1) *	ND (1.1) *	ND (0.22)	18	6.1	13	2.4	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	23	28
	01/06/16	2 - 3	N	ND (2.2) *	ND (1.1)	110	ND (1.1) *	ND (1.1) *	ND (0.22)	19	7.3	7.6	1.2	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	28	30
	01/06/16	5 - 6	N	ND (2.1) *	1.7	110	ND (1.1) *	ND (1.1) *	ND (0.21)	36	12	9.9	1.2	ND (0.11) *	ND (1.1)	30	ND (1.1)	ND (1.1)	ND (2.1) *	46	35
	01/06/16	9 - 10	N	ND (2.3) *	4.9	420	ND (1.2) *	ND (1.2) *	ND (0.23)	36	9.5	22	4	ND (0.12) *	ND (1.2)	27	ND (1.2)	ND (1.2)	ND (2.3) *	44	40
AOC4-BCW6	01/06/16	0 - 1	N	ND (2) *	ND (1)	100	ND (1) *	ND (1)	ND (0.2)	13	8	9.2	1.5	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	30	33
	01/06/16	2 - 3	N	ND (2.1) *	1.7	110	ND (1.1) *	ND (1.1) *	ND (0.21)	24	8	9.2	3	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	32	32
	01/06/16	5 - 6	N	ND (2) *	ND (1)	72	ND (1) *	ND (1)	ND (0.2)	11	6.8	7.7	1.1	ND (0.1) *	ND (1)	8.7	ND (1)	ND (1)	ND (2) *	28	31
	01/06/16	9 - 10	N	ND (2) *	ND (1)	78	ND (1) *	ND (1)	ND (0.2)	13	6.3	7.7	1.4	ND (0.1) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	28	27
AOC4-C01	03/02/10	0	N	ND (2.3) *	3.6	340	ND (1.2) *	ND (1.2) *	0.73	84	7.3	45	5.7	ND (0.11) *	ND (1.2)	23	ND (1.2)	ND (1.2)	ND (2.3) *	39	55
AOC4-C01S	04/22/10	0	N	ND (2.1) *	3	200	ND (1) *	ND (1)	ND (0.41)	15	6.1	11	7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	26	32
AOC4-C02	03/29/10	0	N	ND (4.2) *	7.6	520	ND (2.1) *	ND (2.1) *	ND (0.42)	64	6	26	5.1	ND (0.1) *	ND (2.1) *	25	ND (2.1) *	ND (2.1)	ND (4.2) *	56	50
AOC4-C03	03/18/10	0	N	2.1	1.4	700	ND (1) *	1.1	5.3	73	5.9	90	76	0.25	ND (1)	20	ND (1)	ND (1)	ND (2) *	28	260
AOC4-C04	03/18/10	0	N	ND (2.2) *	5.5	500	ND (1.1) *	ND (1.1) *	ND (0.44)	17	4.4	13	5.4	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	31	33
AOC4-C05	07/26/10	0	N	ND (2) *	2	140	ND (1) *	ND (1)	ND (0.4)	18	6.2	18	12	ND (0.099) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	28	45
AOC4-C06	07/26/10	0	N	ND (2) *	ND (1)	170	ND (1) *	ND (1)	ND (0.4)	29	7.4	9.1	6.8	ND (0.1) *	ND (1)	22	ND (1)	ND (1)	ND (2) *	38	36
AOC4-C06_C07	08/10/10	0	N	ND (2) *	ND (1)	190	ND (1) *	ND (1)	ND (0.4)	47	12	14	8.2	ND (0.099) *	ND (1)	36	ND (1)	ND (1)	ND (2) *	48	47
	08/10/10	0	FD	ND (2) *	ND (1)	210	ND (1) *	ND (1)	ND (0.4)	51	13	16	7.3	ND (0.1) *	ND (1)	41	ND (1)	ND (1)	ND (2) *	52	47
AOC4-D01	03/24/10	0	N	ND (2.2) *	ND (1.1)	570	ND (1.1) *	ND (1.1) *	ND (0.44)	140	13	16	3.1	ND (0.11) *	ND (1.1)	60	ND (1.1)	ND (1.1)	ND (2.2) *	72	49
AOC4-D01S	04/12/10	0	N	ND (2.1) J*	ND (1)	160 J	ND (1) *	ND (1) J	ND (0.41)	42 J	11 J	26	4.9 J	ND (0.1) *	ND (1) J	33 J	ND (1) J	ND (1)	ND (2.1) J*	51 J	45 J
AOC4-D02	03/19/10	0	N	ND (11) *	ND (5.5)	430	ND (5.5) *	ND (5.5) *	ND (0.44)	150	19	34	ND (5.5)	ND (0.11) *	ND (5.5) *	75	ND (5.5) *	ND (5.5) *	ND (11) *	100	86
AOC4-D03	03/19/10	0	N	ND (2.3) *	ND (1.2)	400	ND (1.2) *	ND (1.2) *	1.1	72	20	15	3.4	ND (0.12) *	ND (1.2)	35	ND (1.2)	ND (1.2)	ND (2.3) *	74	50
AOC4-D04	03/19/10	0	N	ND (2.2) *	ND (1.1)	280	ND (1.1) *	ND (1.1) *	ND (0.44) J	160	15	5.9	2.4	ND (0.11) *	ND (1.1)	65	ND (1.1)	ND (1.1)	ND (2.2) *	78	48
AOC4-D05	07/26/10	0	N	ND (2) *	ND (1)	160	ND (1) *	ND (1)	ND (0.4)	18	4.4	9.8	10	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	23	45
AOC4-D06	07/27/10	0	N	ND (2) *	ND (1)	190	ND (1) *	ND (1)	ND (0.4)	33	8.7	12	6.2	ND (0.099) *	ND (1)	26	ND (1)	ND (1)	ND (2) *	43	38
AOC4-D06_D07	08/10/10	0	N	ND (2) *	ND (1)	190	ND (1) *	ND (1)	ND (0.4)	32	8.5	13	6.2	ND (0.098) *	ND (1)	24	ND (1)	ND (1)	ND (2) *	36	40
AOC4-DAM-OS1	02/22/17	0 - 0.2	N	ND (2.2) *	2.4 J	170	ND (1.1) *	1.5 J	ND (0.22)	32	8.7 J	18	5.6 J	ND (0.11) *	ND (1.1)	25 J	ND (1.1) J	ND (1.1)	ND (2.2) J*	29	40 J
	02/22/17	1 - 1.5	N	ND (2.2) *	2.4	130	ND (1.1) *	1.6	ND (0.22)	39	9 J	27	6.8 J	ND (0.11) *	ND (1.1)	27	ND (1.1) J	ND (1.1)	ND (2.2) J*	29	39

TABLE 3-3a

Sample Results: Metals
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC4-DAM-OS2	02/22/17	0 - 0.2	N	ND (2.1) *	2.4	150	ND (1.1) *	1.2	ND (0.21)	23	6.5 J	14	7.4 J	0.74	ND (1.1)	17	ND (1.1) J	ND (1.1)	ND (2.1) J*	22	35
	02/22/17	1 - 1.5	N	ND (2.2) *	2.1	140	ND (1.1) *	1.7	ND (0.22)	43	10 J	21	4.4 J	ND (0.11) *	ND (1.1)	29	ND (1.1) J	ND (1.1)	ND (2.2) J*	31	41
AOC4-E01S	04/22/10	0	N	ND (2.2) *	3.1	460	ND (1.1) *	ND (1.1) *	0.92	43	8.2	22	4.8	ND (0.11) *	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.2) *	40	44
AOC4-E02	04/16/10	0	N	ND (4.3) *	3.8	360	ND (2.2) *	ND (2.2) *	0.94	55	13	13	2.9	ND (0.11) *	ND (2.2) *	38	ND (2.2) *	ND (2.2)	ND (4.3) *	73	55
AOC4-E03	03/25/10	0	N	ND (2.1) *	1.8	190	ND (1.1) *	ND (1.1) *	1.4	67	12	5.7	3.3	ND (0.11) *	ND (1.1)	33	ND (1.1)	ND (1.1)	ND (2.1) *	66	50
AOC4-E04	03/25/10	0	N	ND (2.1) *	ND (1.1)	210	ND (1.1) *	ND (1.1) *	ND (0.42)	21	5.8	8.7	5.3	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	28	31
AOC4-E05	07/27/10	0	N	ND (2) J*	ND (1)	130 J	ND (1) *	ND (1) J	ND (0.4)	23	6.5 J	11	7.5 J	ND (0.099) *	ND (1) J	17 J	ND (1) J	ND (1)	ND (2) J*	29	35 J
	07/27/10	0	FD	ND (2) J*	ND (1)	130 J	ND (1) *	ND (1) J	ND (0.4)	24	6.7 J	11	7.1 J	ND (0.1) *	ND (1) J	18 J	ND (1) J	ND (1)	ND (2) J*	29 J	35 J
AOC4-E06	07/27/10	0	N	ND (2) *	ND (1)	170	ND (1) *	ND (1)	ND (0.4)	28	9.2	11	6	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2) *	34	34
AOC4-E06_E07	08/10/10	0	N	ND (2) *	ND (1)	190	ND (1) *	ND (1)	ND (0.41)	45	11	18	6.1	ND (0.1) *	ND (1)	31	ND (1)	ND (1)	ND (2) *	42	40
AOC4-F01S	04/22/10	0	N	ND (2.2) *	2.2	360	ND (1.1) *	ND (1.1) *	ND (0.43)	51	13	19	3.7	ND (0.11) *	ND (1.1)	34	ND (1.1)	ND (1.1)	ND (2.2) *	58	37
AOC4-F02	03/31/10	0	N	ND (2.1) J*	2.9 J	310 J	ND (1.1) J*	ND (1.1) J*	ND (0.42)	28 J	6.7 J	14 J	4.5 J	ND (0.1) *	ND (1.1) J	19 J	ND (1.1) J	ND (1.1) J	ND (2.1) J*	32 J	41 J
AOC4-F03	03/31/10	0	N	ND (11) *	ND (5.3)	300	ND (5.3) *	ND (5.3) *	ND (0.42)	51	10	33	6.4	ND (0.11) *	ND (5.3) *	20	ND (5.3) *	ND (5.3) *	ND (11) *	74	74
AOC4-F04	03/31/10	0	N	ND (2.1) *	ND (1.1)	250	ND (1.1) *	ND (1.1) *	ND (0.43)	83	9.4	18	4.5	ND (0.11) *	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.1) *	64	48
AOC4-F05	08/09/10	0	N	ND (2) *	ND (1)	190	ND (1) *	ND (1)	ND (0.41)	29	7.5	14	4	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2) *	35	29
AOC4-G01S	04/22/10	0	N	ND (2.1) *	1.7	260	ND (1) *	ND (1)	ND (0.42)	36	8.3	12	4.3	ND (0.1) *	ND (1)	22	ND (1)	ND (1)	ND (2.1) *	40	34
AOC4-G04	08/04/10	0	N	ND (2) J*	ND (1)	170 J	ND (1) *	ND (1) J	ND (0.41)	26 J	5.9	11	11 J	ND (0.1) *	ND (1) J	14 J	ND (1) J	ND (1)	ND (2) J*	28 J	50 J
AOC4-G05	08/05/10	0	N	ND (2.1) *	ND (1)	400	ND (1) *	ND (1)	ND (0.41)	61	14	19	4.4	ND (0.1) *	ND (1)	46	ND (1)	ND (1)	ND (2.1) *	62	46
AOC4-G06	08/09/10	0	N	ND (2) *	ND (1)	210	ND (1) *	ND (1)	ND (0.4)	33	9	16	6	ND (0.1) *	ND (1)	22	ND (1)	ND (1)	ND (2) *	40	39
AOC4-H04	07/27/10	0	N	ND (2) *	ND (1)	210	ND (1) *	ND (1)	ND (0.4)	38	9	11	5.2	ND (0.1) *	ND (1)	27	ND (1)	ND (1)	ND (2) *	41	34
AOC4-H05	08/05/10	0	N	ND (2.1) *	ND (1.1)	300	ND (1.1) *	ND (1.1) *	ND (0.42)	58	13	26	4.2	ND (0.1) *	ND (1.1)	37	ND (1.1)	ND (1.1)	ND (2.1) *	57	42
AOC4-I04	05/19/10	0	N	ND (2.2) *	ND (1.1)	300	ND (1.1) *	ND (1.1) *	ND (0.45)	33	8.8	12	6.5	ND (0.11) *	ND (1.1)	25	ND (1.1)	ND (1.1)	ND (2.2) *	46	35
AOC4-I05	05/24/10	0	N	ND (2.2) *	ND (1.1)	310	ND (1.1) *	ND (1.1) *	ND (0.44)	60	15	33	9.3	ND (0.11) *	ND (1.1)	43	ND (1.1)	ND (1.1)	ND (2.2) *	73	52
AOC4-I06	08/11/10	0	N	ND (2.1) *	ND (1.1)	290	ND (1.1) *	ND (1.1) *	ND (0.43)	44	11	33	5.9	ND (0.11) *	ND (1.1)	32	ND (1.1)	ND (1.1)	ND (2.1) *	58	47
AOC4-I06_I07	08/13/10	0	N	ND (2.1) *	ND (1.1)	360	ND (1.1) *	ND (1.1) *	ND (0.43)	41	10	34	5.5	ND (0.11) *	ND (1.1)	31	ND (1.1)	ND (1.1)	ND (2.1) *	55	52
AOC4-J02	05/10/10	0	N	ND (2.2) *	1.2	230	ND (1.1) *	ND (1.1) *	ND (0.44)	25	7.2	15	5.7	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2) *	34	34
AOC4-J03	05/17/10	0	N	ND (2.3) J*	5	780 J	ND (1.1) *	ND (1.1) J*	ND (0.45)	42 J	7.1 J	26	5.5 J	ND (0.11) *	ND (1.1) J	22 J	ND (1.1)	ND (1.1)	ND (2.3) J*	46 J	41 J
AOC4-J04	06/15/10	0	N	ND (2) J*	1.2	160 J	ND (1) *	ND (1) J	ND (0.4)	20	4.3 J	26	9.7 J	ND (0.1) *	ND (1) J	10 J	ND (1) J	ND (1)	ND (2) J*	23	38 J
AOC4-J05	06/07/10	0	N	ND (2.3) *	ND (1.1)	230	ND (1.1) *	ND (1.1) *	ND (0.45)	60	15	29	4.6	ND (0.11) *	ND (1.1)	42	ND (1.1)	ND (1.1)	ND (2.3) *	66	47
AOC4-J06	06/07/10	0	N	ND (2.2) *	ND (1.1)	360	ND (1.1) *	ND (1.1) *	3.1	74	12	39	24	ND (0.11) *	ND (1.1)	34	ND (1.1)	ND (1.1)	ND (2.2) *	54	92
AOC4-J06_J07	08/13/10	0	N	ND (2.1) *	ND (1.1)	390	ND (1.1) *	ND (1.1) *	0.9	59	13	37	5.7	ND (0.11) *	ND (1.1)	40	ND (1.1)	ND (1.1)	ND (2.1) *	59	58
AOC4-K02	05/17/10	0	N	ND (2) J*	ND (1)	230 J	ND (1) J*	ND (1) J	ND (0.41)	59 J	14 J	24	3.9 J	ND (0.1) *	ND (1) J	42 J	ND (1) J	ND (1)	ND (2) J*	62 J	46 J
	05/17/10	0	FD	ND (2.1) *	ND (1)	270	ND (1) *	ND (1)	ND (0.41)	60	15	26	4.2	ND (0.1) *	ND (1)	41	ND (1)	ND (1)	ND (2.1) *	62	45
AOC4-K03	05/17/10	0	N	ND (2.1) *	ND (1.1)	210	ND (1.1) *	ND (1.1) *	ND (0.42)	41	9.7	17	7	ND (0.1) *	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1) *	43	41
AOC4-K04	06/16/10	0	N	ND (2) *	ND (1)	230	ND (1) *	ND (1)	2.7	52	8.5	39	71	0.22	ND (1)	26	ND (1)	ND (1)	ND (2) *	39	130
AOC4-K05	06/15/10	0	N	2.7	ND (1)	720	ND (1) *	1.5	16	140	11	210	96	0.51	ND (1)	43	ND (1)	ND (1)	ND (2.1) *	57	290

TABLE 3-3a

Sample Results: Metals
AOC 4 – Debris Ravine, Outside Fence Line
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Interim Screening Level [1]:	**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
			Residential Regional Screening Levels [2]:	**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
			Residential DTSC-SL [3]:	**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
			Ecological Comparison Values [4]:	**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
			Background [5]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC4-K06	06/15/10	0	N	ND (2.2) *	ND (1.1)	140	ND (1.1) *	ND (1.1) *	ND (0.45)	52	12	20	4.8	ND (0.11) *	ND (1.1)	35	ND (1.1)	ND (1.1)	ND (2.2) *	59	41
AOC4-K07	06/15/10	0	N	ND (2.2) *	ND (1.1)	170	ND (1.1) *	ND (1.1) *	ND (0.44)	49	11	18	5.7	ND (0.11) *	ND (1.1)	33	ND (1.1)	ND (1.1)	ND (2.2) *	50	41
AOC4-L04	05/18/10	0	N	ND (2.2) *	ND (1.1)	210	ND (1.1) *	ND (1.1) *	ND (0.43)	46	12	18	5.2	ND (0.11) *	ND (1.1)	33	ND (1.1)	ND (1.1)	ND (2.2) *	49	41
AOC4-L05	06/28/10	0	N	ND (2.1) J*	ND (1.1)	63 J	ND (1.1) *	ND (1.1) J*	ND (0.43)	54 J	12 J	25	7 J	ND (0.11) *	ND (1.1) J	34 J	ND (1.1) J	ND (1.1)	ND (2.1) J*	54 J	43 J
AOC4-L06	06/28/10	0	N	ND (2.1) *	ND (1)	160	ND (1) *	ND (1)	ND (0.41)	47	11	32	5.6	ND (0.1) *	ND (1)	34	ND (1)	ND (1)	ND (2.1) *	55	46
	06/28/10	0	FD	ND (2.1) *	ND (1)	150	ND (1) *	ND (1)	ND (0.42)	50	12	32	5.8	ND (0.1) *	ND (1)	37	ND (1)	ND (1)	ND (2.1) *	57	48
AOC4-L07	09/16/10	0	N	ND (2.2) J*	ND (1.1) J	270 J	ND (1.1) J*	ND (1.1) J*	ND (0.44)	58	15	36	8.1	ND (0.11) *	ND (1.1) J	45 J	ND (1.1) J	ND (1.1)	ND (2.2) J*	67 J	61 J
	09/16/10	0	FD	ND (2.2) J*	ND (1.1) J	230 J	ND (1.1) J*	ND (1.1) J*	ND (0.44)	48	11	32	6.1	ND (0.11) *	ND (1.1) J	36 J	ND (1.1) J	ND (1.1)	ND (2.2) J*	53 J	49 J
AOC4-L07_L08	09/20/10	0	N	ND (2.1) *	ND (1.1)	160	ND (1.1) *	ND (1.1) *	ND (0.42)	61	13	30	5.2	ND (0.11) *	ND (1.1)	43	ND (1.1)	ND (1.1)	ND (2.1) *	59	51
AOC4-M05	09/20/10	0	N	ND (2.1) *	ND (1)	140	ND (1) *	ND (1)	ND (0.41)	34	8.9	14	4.6	ND (0.1) *	ND (1)	27	ND (1)	ND (1)	ND (2.1) *	42	34
AOC4-M06	07/08/10	0	N	ND (2) *	ND (1)	170	ND (1) *	ND (1)	ND (0.41)	31	8.3	10	5.1	ND (0.1) *	ND (1)	23	ND (1)	ND (1)	ND (2) *	38	34
AOC4-M07	09/22/10	0	N	ND (2.1) *	ND (1)	160	ND (1) *	ND (1)	ND (0.41)	45	11	21	5	ND (0.1) *	ND (1)	34	ND (1)	ND (1)	ND (2.1) *	48	43
AOC4-M07_M08	09/22/10	0	N	ND (2.1) *	ND (1)	120	ND (1) *	ND (1)	1.6	48	11	26	5.8	ND (0.1) *	ND (1)	36	ND (1)	ND (1)	ND (2.1) *	52	49
AOC4-M08	09/22/10	0	N	ND (2.1) *	ND (1)	280	ND (1) *	ND (1)	ND (0.41)	47	12	29	5.5	ND (0.1) *	ND (1)	35	ND (1)	ND (1)	ND (2.1) *	52	46
AOC4-M08_M09	09/23/10	0	N	ND (2) *	ND (1)	140	ND (1) *	ND (1)	0.75	39	9	24	7.3	ND (0.1) *	ND (1)	26	ND (1)	ND (1)	ND (2) *	42	49
AOC4-M10	10/01/10	0	N	ND (2) *	ND (1)	160	ND (1) *	ND (1)	1.8	69	11	200	6.2	ND (0.1) *	ND (1)	32	ND (1)	ND (1)	ND (2) *	44	50
AOC4-N05_N06	07/08/10	0	N	ND (2) *	ND (1)	170	ND (1) *	ND (1)	ND (0.4)	38	8.6	12	4.9	ND (0.1) *	ND (1)	27	ND (1)	ND (1)	ND (2) *	41	33
AOC4-N06	09/23/10	0	N	ND (2.1) *	ND (1.1)	190	ND (1.1) *	ND (1.1) *	ND (0.42)	33	8.8	13	5.3	ND (0.11) *	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1) *	40	34
AOC4-N07	09/23/10	0	N	ND (2.1) *	ND (1)	140	ND (1) *	ND (1)	ND (0.42)	31	8.1	9.8	5.2	ND (0.1) *	ND (1)	25	ND (1)	ND (1)	ND (2.1) *	36	33
AOC4-N08	09/23/10	0	N	ND (2.1) *	ND (1.1)	120	ND (1.1) *	ND (1.1) *	0.5	26	7.4	9.5	5.4	ND (0.11) *	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.1) *	35	33
AOC4-O07	10/01/10	0	N	ND (2) *	ND (1)	130	ND (1) *	ND (1)	ND (0.4)	34	8.8	15	4.1	ND (0.1) *	ND (1)	29	ND (1)	ND (1)	ND (2) *	39	33
AOC4-O08	10/01/10	0	N	ND (2) *	ND (1)	140	ND (1) *	ND (1)	ND (0.41)	25	6.9	15	5.3	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2) *	35	43
PA-17	01/27/16	0 - 1	N	ND (2.1) *	4	130	ND (1) *	ND (1)	ND (0.21)	25	7.8	13	4.4	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2.1) *	32	47

TABLE 3-3a

Sample Results: Metals
AOC 4 – Debris Ravine, Outside Fence Line
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PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-3b
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
Category 1																								
AOC4-19	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	47	42	81	29	23	50	ND (5.1)	110	ND (5.1)	27	ND (5.1)	11	100	11	509	60
	11/20/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	59 J	48 J	88 J	30 J	24 J	61 J	ND (5.1)	140 J	ND (5.1)	28 J	ND (5.1)	23 J	120 J	23	598	68
AOC4-20	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	21	18	34	12	11	22	ND (5.1)	49	ND (5.1)	11	ND (5.1)	5.1	46	5.1	224	27
AOC4-21	11/20/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.7	5	11	ND (5)	ND (5)	6.7	ND (5)	14	ND (5)	ND (5)	ND (5)	ND (5)	13	ND	55.4	9.5
AOC4-22	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.8	ND (5.1)	ND (5.1)	5.7	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.8	ND	34.3	6.5
AOC4-33	02/14/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	11	28	9.8	5.7	15	ND (5.1)	31	ND (5.1)	8.4	ND (5.1)	8.4	29	8.4	149.9	18
	02/14/17	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-34	02/14/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-35	02/14/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	6.8	18	6.5	ND (5.1)	9.9	ND (5.1)	20	ND (5.1)	5.4	ND (5.1)	6.5	18	6.5	91.7	12
AOC4-A01	03/02/10	0	N	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	190 J	110 J	220 J	82 J	82 J	160 J	21 J	480 J	ND (5.6) J	78 J	ND (5.6) J	30 J	470 J	30	1,893	180
AOC4-A01minus	03/02/10	0	N	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	130 J	82 J	170 J	66 J	39 J	110 J	17 J	310 J	ND (5.4) J	62 J	ND (5.4) J	39 J	260 J	39	1,246	140
AOC4-A01S	04/21/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.7	130 J	70	190	49	44	97	11	290	ND (5.3)	40	ND (5.3)	31	240	36.7	1,161	120
AOC4-A02	02/24/10	0	N	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	110 J	71 J	160 J	59 J	39 J	110 J	18 J	190 J	ND (5.7) J	57 J	ND (5.7) J	20 J	190 J	20	1,004	120
AOC4-A03	03/01/10	0	N	ND (5.9) J	ND (5.9) J	ND (5.9) J	ND (5.9) J	12 J	420 J	190 J	520 J	140 J	100 J	260 J	37 J	760 J	ND (5.9) J	130 J	ND (5.9) J	70 J	700 J	82	3,257	340
	03/01/10	0	FD	ND (5.9) J	ND (5.9) J	ND (5.9) J	ND (5.9) J	10 J	290 J	170 J	490 J	120 J	90 J	240 J	33 J	720 J	ND (5.9) J	120 J	ND (5.9) J	55 J	650 J	65	2,923	290
AOC4-A04	07/27/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	ND (5)	ND (5)	ND (5)	ND (5)	7	ND (5)	ND (5)	ND (5)	ND (5)	6.3	ND	20	6.2
AOC4-A05	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC4-A06	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC4-A06_A07	08/10/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC4-B01	03/03/10	0	N	ND (5.9) J	ND (5.9) J	ND (5.9) J	ND (5.9) J	13 J	410 J	170 J	510 J	110 J	97 J	250 J	30 J	770 J	ND (5.9) J	110 J	ND (5.9) J	110 J	640 J	123	3,097	300
AOC4-B01S	04/21/10	0	N	ND (5.6)	ND (5.6)	5.9	ND (5.6)	33 J	160 J	64 J	160 J	40 J	36 J	120 J	8.5	490 J	ND (5.6)	32 J	ND (5.6)	240 J	360 J	278.9	1,471	110
	04/21/10	0	FD	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5) J	5.5 J	ND (5.5) J	ND (5.5) J	ND (5.5) J	ND (5.5) J	5.9 J	ND (5.5)	18 J	ND (5.5)	ND (5.5) J	ND (5.5)	20 J	13 J	20	42.4	6.6
AOC4-B02	03/17/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	24	810	620	1,200	550	1,400	750	93	2,100	ND (5.4)	440	ND (5.4)	140	2,200	164	10,163	970
AOC4-B03	03/03/10	0	N	ND (5.5) J	ND (5.5) J	ND (5.5) J	ND (5.5) J	10 J	250 J	140 J	430 J	97 J	73 J	220 J	31 J	600 J	ND (5.5) J	97 J	ND (5.5) J	54 J	550 J	64	2,488	250
AOC4-B04	03/12/10	0	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	14	12	24	10	9	17	ND (5.6)	35	ND (5.6)	7.5	ND (5.6)	ND (5.6)	34	ND	162.5	19
AOC4-B05	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7	8	19	8.7	6.7	10	ND (5)	21	ND (5)	7	ND (5)	ND (5)	19	ND	106.4	14
AOC4-B06	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	21	18	41	18	16	24	5	54	ND (5)	15	ND (5)	12	45	12	257	31
AOC4-B06_B07	08/10/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC4-BCW1	01/06/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

TABLE 3-3b
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC4-BCW2	01/06/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/06/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/06/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-BCW3	01/06/16	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9.3	ND (5.4)	ND (5.4)	6.1	ND (5.4)	9.3	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	8.6	ND	33.3	6.9
	01/06/16	0 - 1	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	12	12	22	ND (5.3)	9.2	12	ND (5.3)	23	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	21	ND	111.2	18
	01/06/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/06/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/06/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-BCW4	01/06/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/06/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/06/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-BCW5	01/06/16	0 - 1	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
	01/06/16	0 - 1	FD	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	01/06/16	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	01/06/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/06/16	9 - 10	N	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND	ND	ND (6.7)
AOC4-BCW6	01/06/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/06/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-C01	03/02/10	0	N	ND (5.6) J	ND (5.6) J	22 J	6 J	95 J	1,000 J	750 J	1,400 J	190 J	380 J	1,200 J	63 J	2,400 J	14 J	200 J	ND (5.6) J	1,200 J	2,100 J	1,337	9,683	1,100
AOC4-C01S	04/22/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	25	14	31	12	8.9	20	ND (5.1)	46	ND (5.1)	8.9	ND (5.1)	6.5	39	6.5	204.8	23
AOC4-C02	03/29/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	44	380	180	280	87	80	360	24	800	ND (5.5)	79	ND (5.5)	210	740	254	3,010	280
AOC4-C03	03/18/10	0	N	8.8	12	ND (5.1)	ND (5.1)	5.8	170	140	240	94	80	160	22	530	ND (5.1)	76	6.5	37	480	70.1	1,992	210
AOC4-C04	03/18/10	0	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	6.3	6.3	11	ND (5.6)	ND (5.6)	6.7	ND (5.6)	16	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	16	ND	62.3	11
AOC4-C05	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	12	11	27	10	10	15	ND (5)	32	ND (5)	8.7	ND (5)	ND (5)	31	ND	156.7	18
AOC4-C06	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	ND (5)	ND (5)	ND (5)	ND (5)	6.3	ND	13	5.8
AOC4-C06_C07	08/10/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5	ND (5)	10	ND (5)	ND (5)	7	ND (5)	15	ND (5)	ND (5)	ND (5)	ND (5)	12	ND	49	6.8
	08/10/10	0	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.7	ND (5)	ND (5)	6.7	ND (5)	16	ND (5)	ND (5)	ND (5)	ND (5)	13	ND	43.4	6.3
AOC4-D01	03/24/10	0	N	ND (5.5) J	ND (5.5) J	ND (5.5) J	ND (5.5) J	36 J	870 J	550 J	860 J	390 J	190 J	630 J	90 J	1,200 J	ND (5.5) J	330 J	ND (5.5) J	130 J	1,100 J	166	6,210	850
AOC4-D01S	04/12/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11 J	6.2	11	5.2	ND (5.2)	9.6	ND (5.2)	17	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	16	ND	76	11
AOC4-D02	03/19/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC4-D03	03/19/10	0	N	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	25	21	31	14	14	19	ND (5.8)	25	ND (5.8)	10	ND (5.8)	ND (5.8)	27	ND	186	31

TABLE 3-3b
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC4-D04	03/19/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC4-D05	07/26/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	12	11	28	12	10	15	ND (5)	33	ND (5)	9.7	ND (5)	5.3	30	5.3	160.7	19
AOC4-D06	07/27/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.7	ND (5)	ND (5)	ND (5)	ND (5)	7	ND (5)	ND (5)	ND (5)	ND (5)	6	ND	18.7	6.1
AOC4-D06_D07	08/10/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8	5.7	15	5.3	ND (5)	9.3	ND (5)	19	ND (5)	ND (5)	ND (5)	ND (5)	20	ND	82.3	11
AOC4-DAM-OS	02/22/17	0 - 0.2	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	6	5.6	6	5.6	6.5
	02/22/17	1 - 1.5	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	34 J	22	52	8.8	14	27	ND (5.5)	64	ND (5.5)	9.2	ND (5.5)	14	55	14	286	34
AOC4-DAM-OS	02/22/17	0 - 0.2	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	11 J	8.8	23	ND (5.3)	6.7	13	ND (5.3)	25	ND (5.3)	ND (5.3)	ND (5.3)	8.8	24	8.8	111.5	15
	02/22/17	1 - 1.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	14 J	11	26	5.4	6.9	14	ND (5.4)	30	ND (5.4)	ND (5.4)	ND (5.4)	9.1	28	9.1	135.3	18
AOC4-E01S	04/22/10	0	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	66	41	90	36	25	57	7.1	130	ND (5.6)	27	ND (5.6)	23	110	23	589.1	67
AOC4-E02	04/16/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC4-E03	03/25/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	9.5	8.8	12	7.7	6.6	9.5	ND (5.5)	16	ND (5.5)	6.2	ND (5.5)	ND (5.5)	15	ND	91.3	14
AOC4-E04	03/25/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	17	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	13	ND	30	6.4
AOC4-E05	07/27/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	07/27/10	0	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.3	ND (5)	ND (5)	ND (5)	ND (5)	8.7	ND (5)	ND (5)	ND (5)	ND (5)	8	ND	25	6.4
AOC4-E06	07/27/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC4-E06_E07	08/10/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-F01S	04/22/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC4-F02	03/31/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	36	30	65	21	16	36	5.2	77	ND (5.2)	19	ND (5.2)	9.8	62	9.8	367.2	47
AOC4-F03	03/31/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	19	120	59	110	28	26	100	8.5	200	ND (5.3)	26	ND (5.3)	65	190	84	867.5	93
AOC4-F04	03/31/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	8.9	5.7	14	ND (5.3)	ND (5.3)	7.5	ND (5.3)	17	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	15	ND	68.1	11
AOC4-F05	08/09/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-G01S	04/22/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	88	49	98	40	31	78	8.3	140	ND (5.2)	30	ND (5.2)	23	120	23	682.3	79
AOC4-G04	08/04/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	34	27	63	31	23	46	6.8	100	ND (5.1)	25	ND (5.1)	15	92	15	447.8	46
AOC4-G05	08/05/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-G06	08/09/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	39	23	45	18	18	37	ND (5)	82	ND (5)	16	ND (5)	13	71	13	349	36
AOC4-H04	07/27/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	6	ND (5)	6.7	ND (5)	16	ND (5)	ND (5)	ND (5)	ND (5)	13	ND	52.7	6.6
AOC4-H05	08/05/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-I04	05/19/10	0	N	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND	ND	ND (6.5)
AOC4-I05	05/24/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	8	ND (5.5)	ND (5.5)	7.7	ND (5.5)	ND (5.5)	7.3	ND (5.5)	ND (5.5)	ND (5.5)	ND	23	12
AOC4-I06	08/11/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC4-I06_I07	08/13/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND	10.8	6.2
AOC4-J02	05/10/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC4-J03	05/17/10	0	N	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	5.6 J	ND (5.6) J	9 J	12 J	ND (5.6) J	7.9 J	8.2 J	16 J	ND (5.6) J	9.7 J	ND (5.6) J	6 J	13 J	6	81.4	13
AOC4-J04	06/15/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	17	15	32	13	11	18	ND (5)	42	ND (5)	11	ND (5)	8.3	36	8.3	195	24
AOC4-J05	06/07/10	0	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND	ND	ND (6.6)

TABLE 3-3b
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC4-J06	06/07/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9.3	7.9	23	9	5.7	13	ND (5.4)	23	ND (5.4)	7.2	ND (5.4)	7.5	20	7.5	118.1	15
AOC4-J06_J07	08/13/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.4	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.8	ND	13.2	6.2
AOC4-K02	05/17/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	05/17/10	0	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-K03	05/17/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.3	6	13	6.3	5.6	9.5	ND (5.3)	18	ND (5.3)	5.3	ND (5.3)	ND (5.3)	17	ND	87	11
AOC4-K04	06/16/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	34	36	86	34	28	50	7.4	96	ND (5)	28	ND (5)	32	82	32	481.4	59
AOC4-K05	06/15/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	18	17	34	18	9.9	21	ND (5.1)	32	ND (5.1)	14	ND (5.1)	13	28	13	191.9	26
AOC4-K06	06/15/10	0	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND	ND	ND (6.5)
AOC4-K07	06/15/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC4-L04	05/18/10	0	N	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND (5.6) J	ND	ND	ND (6.5)
AOC4-L05	06/28/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-L06	06/28/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	06/28/10	0	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-L07	09/16/10	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	09/16/10	0	FD	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC4-L07_L08	09/20/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-M05	09/20/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-M06	07/08/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-M07	09/22/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-M07_M08	09/22/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (5.1)	ND (5.1)	5.5	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	5.8	9.2	5.8	32.5	6.2
AOC4-M08	09/22/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	16	13	22	7.2	6.5	15	ND (5.2)	35	ND (5.2)	6.2	ND (5.2)	15	30	15	150.9	20
AOC4-M08_M09	09/23/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	8.8	ND (5.1)	ND (5.1)	6.1	ND (5.1)	13	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	ND	44	6.8
AOC4-M10	10/01/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	7.8	15	5.8	5.1	10	ND (5.1)	23	ND (5.1)	5.1	ND (5.1)	5.4	21	5.4	103.8	14
AOC4-N05_N06	07/08/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-N06	09/23/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.3	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.6	ND	11.9	6.1
AOC4-N07	09/23/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-N08	09/23/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-O07	10/01/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.7	ND	13.8	5.9
AOC4-O08	10/01/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	ND (5.1)	7.1	ND (5.1)	ND (5.1)	6.8	ND (5.1)	13	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	ND	44.3	6.6
PA-17	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (58)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-3c

Sample Results: Total Petroleum Hydrocarbons
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)
			Interim Screening Level [1] :	**11,000**
			Residential Regional Screening Levels [2] :	**NE**
			Residential DTSC-SL [3] :	**NE**
			RWQCB Environmental Screening Levels [4] :	**11,000**
			Ecological Comparison Values [5] :	**NE**
			Background [6] :	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as motor oil**
PA-17	01/27/16	0 - 1	N	31

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-3d
Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC4-19	11/20/15	0 - 1	N	ND (17) J	ND (33)	ND (17)	ND (17)	ND (17)	78	38 J	---	---	133
	11/20/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	57	ND (17)	---	---	82.5
AOC4-20	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	110	87	---	---	214
AOC4-21	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	57	48	---	---	122
AOC4-22	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	49	37	---	---	103
AOC4-33	02/14/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	70	58	---	---	145
	02/14/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-34	02/14/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	26	ND (17)	---	---	51.5
AOC4-35	02/14/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	83	65	---	---	165
AOC4-A01	03/02/10	0	N	ND (19) J	ND (37) J	ND (19) J	ND (19) J	ND (19) J	120 J	ND (19) J	---	---	148.5
AOC4-A01minus	03/02/10	0	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	150 J	ND (18) J	---	---	177
AOC4-A01S	04/21/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	170	ND (18)	---	---	58
AOC4-A02	02/24/10	0	N	ND (19) J	ND (37) J	ND (19) J	ND (19) J	ND (19) J	23 J	ND (19) J	---	---	51.5
AOC4-A03	03/01/10	0	N	ND (20) J	ND (39) J	ND (20) J	ND (20) J	ND (20) J	90 J	ND (20) J	---	---	120
	03/01/10	0	FD	ND (19) J	ND (39) J	ND (19) J	ND (19) J	ND (19) J	75 J	ND (19) J	---	---	103.5
AOC4-A04	07/27/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	46.5
AOC4-A05	07/26/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-A06	07/26/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (34)
AOC4-A06_A07	08/10/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (32)
AOC4-B01	03/03/10	0	N	ND (19) J	ND (39) J	ND (19) J	ND (19) J	ND (19) J	310 J	ND (19) J	---	---	338.5
AOC4-B01S	04/21/10	0	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/21/10	0	FD	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-B02	03/17/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	220	ND (18)	---	---	267
AOC4-B03	03/03/10	0	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	100 J	ND (18) J	---	---	157

TABLE 3-3d

Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1]:				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2]:				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-B04	03/12/10	0	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
AOC4-B05	07/26/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	22	ND (16)	ND (16)	ND (16)	46
AOC4-B06	07/26/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	53	ND (16)	ND (16)	ND (16)	80
AOC4-B06_B07	08/10/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-BCW1	01/06/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-BCW2	01/06/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	9 - 10	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-BCW3	01/06/16	0 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	110	ND (18)	---	---	137
	01/06/16	0 - 1	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	71	ND (18)	---	---	98
	01/06/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-BCW4	01/06/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-3d

Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-BCW5	01/06/16	0 - 1	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16	0 - 1	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16	2 - 3	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16	9 - 10	N	ND (19)	ND (39)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
AOC4-BCW6	01/06/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-C01	03/02/10	0	N	ND (19) J	ND (38) J	ND (19) J	ND (19) J	ND (19) J	410 J	ND (19) J	---	---	438.5
AOC4-C01S	04/22/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-C02	03/29/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	170	ND (17)	---	---	195.5
AOC4-C03	03/18/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	400	ND (17)	---	---	565.5
AOC4-C04	03/18/10	0	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	37	ND (18)	---	---	64
AOC4-C05	07/26/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	120 J	ND (17)	ND (17)	ND (17)	145.5
AOC4-C06	07/26/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	18	ND (16)	ND (16)	ND (16)	44
AOC4-C06_C07	08/10/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (32)
	08/10/10	0	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-D01	03/24/10	0	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	340 J	ND (18) J	---	---	377
AOC4-D01S	04/12/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	21	ND (17)	---	---	ND (34)
AOC4-D02	03/19/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-D03	03/19/10	0	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	160	ND (19)	---	---	398.5
AOC4-D04	03/19/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	25	ND (18)	---	---	71
AOC4-D05	07/26/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	140	ND (17)	ND (17)	ND (17)	165.5
AOC4-D06	07/27/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (34)

TABLE 3-3d
Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-D06_D07	08/10/10	0	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (32)
AOC4-DAM-OS1	02/22/17	0 - 0.2	N	ND (18)	ND (37)	ND (18)	ND (18) J	ND (18)	280	ND (18)	---	---	307
	02/22/17	1 - 1.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	1,200	380	---	---	1,598
AOC4-DAM-OS2	02/22/17	0 - 0.2	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	230 J	ND (17)	---	---	255.5
	02/22/17	1 - 1.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	320	ND (18)	---	---	347
AOC4-E01S	04/22/10	0	N	48	ND (37)	ND (18)	ND (18)	ND (18)	2,500	ND (18)	---	---	2,566
AOC4-E02	04/16/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	510	ND (18)	---	---	537
AOC4-E03	03/25/10	0	N	31	ND (35)	ND (18)	ND (18)	ND (18)	1,800	ND (18)	---	---	1,849
AOC4-E04	03/25/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	500	ND (17)	---	---	927
AOC4-E05	07/27/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	42.5
	07/27/10	0	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	66	ND (17)	ND (17)	ND (17)	96.5
AOC4-E06	07/27/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	17	ND (17)	ND (17)	ND (17)	45
AOC4-E06_E07	08/10/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-F01S	04/22/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	34	ND (18)	---	---	ND (36)
AOC4-F02	03/31/10	0	N	42	ND (35)	ND (17)	ND (17)	ND (17)	1,600	ND (17)	---	---	2,876
AOC4-F03	03/31/10	0	N	38	ND (35)	ND (18)	ND (18)	ND (18)	1,900	ND (18)	---	---	1,956
AOC4-F04	03/31/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	710	ND (18)	---	---	737
AOC4-F05	08/09/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-G01S	04/22/10	0	N	42	ND (34)	ND (17)	ND (17)	ND (17)	2,900	ND (17)	---	---	3,158
AOC4-G04	08/04/10	0	N	25	ND (34)	ND (17)	ND (17)	ND (17)	2,500	ND (17)	ND (17)	ND (17)	2,638
AOC4-G05	08/05/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-G06	08/09/10	0	N	30	ND (33)	ND (17)	ND (17)	ND (17)	2,100	640	ND (17)	ND (17)	2,779
AOC4-H04	07/27/10	0	N	60	ND (33)	ND (16)	ND (16)	ND (16)	5,900	ND (16)	ND (16)	ND (16)	6,281
AOC4-H05	08/05/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	280	ND (17)	ND (17)	ND (17)	325.5
AOC4-I04	05/19/10	0	N	ND (19) J	ND (37) J	ND (19) J	ND (19) J	ND (19) J	1,200 J	ND (19) J	ND (19) J	ND (19) J	1,229

TABLE 3-3d

Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-I05	05/24/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-I06	08/11/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-I06_I07	08/13/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	77	53	ND (18)	ND (18)	148
AOC4-J02	05/10/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	78	ND (18)	---	---	112
AOC4-J03	05/17/10	0	N	ND (19) J	ND (37) J	ND (19) J	ND (19) J	ND (19) J	320 J	ND (19) J	ND (19) J	ND (19) J	348.5
AOC4-J04	06/15/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	300	ND (17)	ND (17)	ND (17)	325.5
AOC4-J05	06/07/10	0	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
AOC4-J06	06/07/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	66	ND (18)	ND (18)	ND (18)	93
AOC4-J06_J07	08/13/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	75	49	ND (18)	ND (18)	142
AOC4-K02	05/17/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/17/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-K03	05/17/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-K04	06/16/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	250	ND (17)	ND (17)	ND (17)	275.5
AOC4-K05	06/15/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	160	ND (17)	ND (17)	ND (17)	185.5
AOC4-K06	06/15/10	0	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
AOC4-K07	06/15/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-L04	05/18/10	0	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (36)
AOC4-L05	06/28/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-L06	06/28/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	06/28/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-L07	09/16/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	09/16/10	0	FD	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	19	ND (18)	ND (18)	ND (18)	46
AOC4-L07_L08	09/20/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-M05	09/20/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-M06	07/08/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

TABLE 3-3d

Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-M07	09/22/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-M07_M08	09/22/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	28	ND (17)	ND (17)	ND (17)	53.5
AOC4-M08	09/22/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	36	ND (17)	ND (17)	ND (17)	61.5
AOC4-M08_M09	09/23/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	43	ND (17)	ND (17)	ND (17)	68.5
AOC4-M10	10/01/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	140	29	ND (17)	ND (17)	186
AOC4-N05_N06	07/08/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-N06	09/23/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	58	ND (17)	ND (17)	ND (17)	83.5
AOC4-N07	09/23/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-N08	09/23/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-O07	10/01/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	28	ND (17)	ND (17)	ND (17)	54.5
AOC4-O08	10/01/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	100	25	ND (17)	ND (17)	142
PA-17	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.

TABLE 3-3d

Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-3e

Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
Category 1																							
AOC4-19	11/20/15	0 - 1	N	180	17	ND (2.3)	2.3 J	2.3 J	5.7 J	ND (1.8)	4.5 J	ND (0.36)	ND (3.1)	0.94 J	ND (6)	ND (1.1)	ND (0.51)	ND (0.45)	1,200	28	4.4	6.3	6.3
	11/20/15	2 - 3	N	20	3.3 J	ND (0.26)	ND (0.63)	ND (0.3)	ND (0.63)	ND (0.29)	ND (0.6)	ND (0.33)	ND (0.49)	ND (0.13)	ND (4.1)	ND (0.17)	ND (0.25)	0.67 J	160	9.5 J	1.5	1.1	1.1
AOC4-20	11/20/15	0 - 1	N	290	21	2.3 J	3.7 J	ND (2.2)	8.1 J	2.3 J	5.8 J	ND (1.5)	ND (1.7)	1.2 J	ND (13)	1.6 J	ND (0.22)	ND (1.2)	2,000	48	5.9	8.1	8.1
AOC4-21	11/20/15	0 - 1	N	130	8.2 J	ND (0.78)	1.9 J	1.2 J	3.8 J	ND (0.76)	3.1 J	ND (0.31)	ND (2)	ND (0.15)	ND (4.4)	0.53 J	ND (0.12)	ND (0.55)	820	13 J	3	4.2	4.2
AOC4-22	11/20/15	0 - 1	N	66	4.4 J	ND (0.48)	1.5 J	ND (0.55)	ND (3)	0.58 J	ND (2)	ND (0.097)	ND (0.72)	ND (0.25)	ND (2.9)	ND (0.26)	ND (0.13)	ND (0.23)	370	6.8 J	1.3	1.9	1.9
AOC4-33	02/14/17	0 - 0.5	N	84	4.2 J	ND (0.64)	ND (1.5)	ND (0.87)	3.3 J	ND (1.2)	ND (2.1)	ND (0.3)	ND (0.79)	ND (0.24)	ND (5.6)	ND (0.25)	ND (0.16)	ND (0.29)	670	6.5 J	1.5	2.5	2.5
	02/14/17	2 - 3	N	4 J	0.21 J	ND (0.086)	ND (0.15)	ND (0.1)	ND (0.15)	ND (0.087)	ND (0.19)	ND (0.099)	ND (0.14)	ND (0.17)	0.46 J	ND (0.18)	ND (0.04)	ND (0.053)	25	0.55 J	0.3	0.26	0.26
AOC4-34	02/14/17	0 - 0.5	N	270	19	2.9 J	5.8 J	2 J	10 J	ND (2.3)	10 J	1.2 J	2.8 J	ND (0.94)	ND (10)	ND (0.91)	ND (0.16)	0.73 J	2,000	30	7.1	10	10
AOC4-35	02/14/17	0 - 0.5	N	230	13	1.5 J	ND (3.4)	1.3 J	9.2 J	1.9 J	7.4 J	ND (0.42)	ND (1.7)	ND (0.46)	ND (11)	ND (0.37)	ND (0.14)	ND (0.23)	1,800	21 J	3.6	6.7	6.7
AOC4-A01	03/02/10	0	N	270	19	ND (2.1)	ND (3.2)	ND (3.4)	8.4 J	2.6 J	6.2 J	ND (1.4)	ND (2.1)	ND (1.7)	ND (3.1)	ND (2.2)	ND (0.39)	ND (1.5)	3,700	38	5.5	8	8
AOC4-A01minus	03/02/10	0	N	470	41	ND (2.2)	7 J	ND (6.2)	17	ND (2.7)	14	ND (1.8)	ND (3.9)	ND (1.5)	ND (5.4)	ND (4)	ND (0.96)	ND (2.9)	5,300	39	10	15	15
AOC4-A01S	04/21/10	0	N	ND (27)	ND (2.5)	ND (0.38)	ND (1.1)	ND (0.6)	ND (1.1)	ND (0.34)	ND (1.1)	ND (0.41)	ND (1.4)	ND (0.38)	ND (0.39)	ND (0.37)	ND (0.21)	ND (1.1)	180	ND (3.6)	1.8	1.4	1.4
AOC4-A02	02/24/10	0	N	520	58	ND (1.3)	ND (1.7)	8.4 J	ND (7.4)	ND (2)	ND (2.5)	ND (2.3)	ND (1.2)	ND (1.8)	ND (4.1)	ND (1.5)	ND (0.21)	ND (1)	10,000	46	5.6	12	12
AOC4-A03	03/01/10	0	N	200	23	2.5 J	4.3 J	ND (4.4)	9.1 J	2.7 J	7.7 J	ND (1.3)	ND (2.3)	2.5 J	4.8 J	ND (3.1)	0.59 J	ND (1.8)	1,800	29	7.2	8.3	8.3
	03/01/10	0	FD	150	ND (11)	1.8 J	3.2 J	ND (3.4)	6.6 J	3.1 J	5.5 J	ND (0.36)	ND (1.9)	1.9 J	3.2 J	2.4 J	0.47 J	ND (1.5)	1,300	22 J	6.7	6.6	6.6
AOC4-A04	07/27/10	0	N	68	5.4 J	0.99 J	ND (1)	ND (0.83)	3.2 J	0.87 J	2.2 J	0.62 J	ND (0.21)	0.47 J	ND (3.1)	ND (0.26)	ND (0.33)	ND (0.9)	430	7.6 J	1.7	2.2	2.2
AOC4-A05	07/26/10	0	N	55	3.6 J	ND (0.29)	ND (0.78)	0.62 J	2.1 J	0.47 J	1.5 J	0.2 J	ND (0.13)	ND (0.3)	ND (2.5)	ND (0.29)	0.11 J	0.63 J	450	5.4 J	1.5	1.7	1.7
AOC4-A06	07/26/10	0	N	530	28	1.7 J	ND (2)	ND (1.6)	9.2 J	ND (0.79)	4.3 J	0.6 J	ND (0.21)	0.46 J	ND (5.3)	0.42 J	ND (0.078)	0.65 J	10,000 J	83	4.1	11	11
AOC4-A06_A07	08/10/10	0	N	33	ND (2.5)	ND (0.17)	ND (0.25)	ND (0.17)	1.5 J	ND (0.33)	1.3 J	ND (0.19)	ND (0.3)	ND (0.14)	ND (2.6)	ND (0.14)	ND (0.12)	ND (0.32)	280	4 J	0.84	1.1	1.1
AOC4-B01	03/03/10	0	N	110	9.6 J	0.84 J	ND (1.8)	2.5 J	4.4 J	ND (1.9)	3.1 J	ND (0.99)	ND (1)	2.1 J	1.8 J	ND (4.8)	ND (0.16)	2.1 J	1,000	10 J	6.6	4.5	4.5
AOC4-B01S	04/21/10	0	N	ND (0.98)	ND (0.16)	ND (0.19)	ND (0.29)	ND (0.19)	ND (0.29)	ND (0.17)	ND (0.29)	ND (0.35)	ND (0.42)	ND (0.3)	ND (0.2)	ND (0.3)	ND (0.18)	ND (0.55)	ND (7.5)	ND (0.35)	ND (0.81)	ND (0.47)	ND (0.47)
	04/21/10	0	FD	ND (1.2)	ND (0.29)	ND (0.35)	ND (0.53)	ND (0.25)	ND (0.36)	ND (0.23)	ND (0.36)	ND (0.45)	ND (0.44)	ND (0.33)	ND (0.33)	ND (0.32)	ND (0.17)	ND (0.25)	ND (11)	ND (0.34)	ND (0.71)	ND (0.51)	ND (0.51)
AOC4-B02	03/17/10	0	N	1,400	160	13	22	ND (43)	59	33	43	11 J	ND (16) *	21	48	36	3 J	16	11,000	120	87	67	67
AOC4-B03	03/03/10	0	N	5,000	ND (490)	48	87	ND (130)	220	100	170	39	56	67	140	100	14	34	35,000	330	280	250	250
AOC4-B04	03/12/10	0	N	48	ND (3.7)	ND (0.31)	ND (0.93)	ND (1.1)	2.5 J	0.83 J	ND (1.1) J	ND (0.58)	ND (0.76)	ND (0.91)	ND (0.88)	1.3 J	ND (0.19)	0.89 J	330	3.1 J	3.1	2.1	2.1
AOC4-B05	07/26/10	0	N	140	8.7 J	0.9 J	ND (2.2)	1.1 J	6 J	0.87 J	4.3 J	ND (0.47)	ND (0.15)	0.59 J	ND (7)	0.56 J	ND (0.37)	0.94 J	1,100	17 J	3.3	4.1	4.1
AOC4-B06	07/26/10	0	N	350	33	4.1 J	ND (0.14)	4.7 J	ND (10)	2.8 J	ND (7.1)	1.3 J	ND (0.32)	1.3 J	ND (18)	1.8 J	ND (0.087)	ND (1.7)	2,700	55	6.2	8.2	8.2
AOC4-B06_B07	08/10/10	0	N	27	2.1 J	ND (0.21)	ND (0.35)	ND (0.33)	ND (1.2)	ND (0.14)	0.91 J	ND (0.19)	ND (0.32)	ND (0.14)	0.22 J	ND (0.14)	ND (0.13)	ND (0.3)	190	ND (2.7)	0.68	0.84	0.84

TABLE 3-3e

Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC4-BCW1	01/06/16	0 - 1	N	15	1.1 J	ND (0.33)	ND (0.18)	ND (0.27)	ND (0.48)	ND (0.16)	ND (0.17)	ND (0.14)	ND (0.17)	ND (0.1)	ND (1.5)	ND (0.11)	ND (0.029)	ND (0.046)	130	2.5 J	0.34	0.47	0.47
	01/06/16	2 - 3	N	5 J	ND (0.27)	ND (0.22)	ND (0.1)	ND (0.12)	ND (0.078)	ND (0.22)	ND (0.074)	ND (0.14)	ND (0.11)	ND (0.059)	ND (0.48)	ND (0.063)	ND (0.045)	ND (0.08)	44	ND (0.61)	0.22	0.22	0.22
	01/06/16	5 - 6	N	2.1 J	ND (0.12)	ND (0.15)	ND (0.07)	ND (0.034)	ND (0.069)	ND (0.032)	ND (0.066)	ND (0.04)	ND (0.028)	ND (0.075)	ND (0.19)	ND (0.081)	ND (0.037)	ND (0.024)	14 J	ND (0.13)	0.11	0.099	0.099
	01/06/16	9 - 10	N	ND (0.77)	ND (0.17)	ND (0.19)	ND (0.11)	ND (0.037)	ND (0.052)	ND (0.055)	ND (0.07)	0.24 J	ND (0.043)	ND (0.05)	ND (0.18)	ND (0.097)	ND (0.61)	0.3 J	ND (4.4)	ND (0.11)	0.72	0.43	0.43
AOC4-BCW2	01/06/16	0 - 1	N	35	1.9 J	ND (0.37)	ND (0.2)	ND (0.16)	1.5 J	ND (0.15)	0.77 J	ND (0.18)	ND (0.15)	ND (0.13)	ND (4.4)	ND (0.14)	ND (0.22)	ND (0.26)	240	3.6 J	0.81	1.1	1.1
	01/06/16	2 - 3	N	0.45 J	ND (0.18)	ND (0.065)	ND (0.068)	ND (0.042)	ND (0.034)	ND (0.042)	ND (0.033)	ND (0.038)	ND (0.049)	ND (0.15)	ND (0.19)	ND (0.16)	ND (0.068)	ND (0.029)	ND (0.99)	ND (0.085)	0.18	0.11	0.11
	01/06/16	5 - 6	N	ND (1.2)	ND (0.092)	ND (0.056)	ND (0.079)	ND (0.052)	ND (0.048)	ND (0.049)	ND (0.046)	ND (0.061)	ND (0.069)	ND (0.11)	ND (0.18)	ND (0.12)	ND (0.038)	ND (0.077)	ND (6.8)	ND (0.051)	ND (0.18)	ND (0.11)	ND (0.11)
	01/06/16	9 - 10	N	ND (0.79)	ND (0.073)	ND (0.093)	ND (0.041)	ND (0.095)	ND (0.06)	ND (0.088)	ND (0.029)	ND (0.11)	ND (0.033)	ND (0.1)	ND (0.36)	ND (0.14)	ND (0.05)	ND (0.047)	7 J	ND (0.082)	0.18	0.11	0.11
	01/06/16	9 - 10	FD	ND (0.5)	ND (0.038)	ND (0.048)	ND (0.036)	ND (0.027)	ND (0.036)	ND (0.025)	ND (0.034)	ND (0.031)	ND (0.043)	ND (0.054)	ND (0.027)	ND (0.058)	ND (0.021)	ND (0.1)	6.6 J	ND (0.14)	0.12	0.062	0.062
AOC4-BCW3	01/06/16	0 - 1	N	4,500 J	340 J	ND (34)	17	ND (30)	110 J	ND (28)	39	ND (35)	8.9 J	5 J	ND (750)	8 J	ND (1.6)	3 J	36,000	1,200 J	81	130	130
	01/06/16	0 - 1	FD	7,500 J	660 J	ND (480)	ND (14)	ND (2.8)	170 J	ND (9.2)	46	ND (3.2)	ND (0.61)	ND (1.1)	ND (1,400)	7.7 J	ND (0.89)	2.2 J	35,000	2,500 J	110	190	190
	01/06/16	2 - 3	N	12 J	ND (0.67)	ND (0.4)	ND (0.12)	ND (0.21)	ND (0.12)	ND (0.2)	ND (0.12)	ND (0.25)	ND (0.08)	ND (0.13)	ND (2.7)	ND (0.14)	ND (0.046)	ND (0.12)	93	ND (1.8)	0.4	0.43	0.43
	01/06/16	5 - 6	N	17	ND (0.78)	ND (0.21)	ND (0.23)	ND (0.29)	ND (0.28)	ND (0.27)	ND (0.078)	ND (0.33)	ND (0.063)	ND (0.075)	ND (1.8)	ND (0.081)	ND (0.25)	ND (0.075)	160	ND (2.1)	0.42	0.56	0.56
	01/06/16	9 - 10	N	4.7 J	ND (0.15)	ND (0.19)	ND (0.13)	ND (0.22)	ND (0.22)	ND (0.2)	ND (0.12)	ND (0.25)	ND (0.042)	ND (0.11)	ND (0.22)	ND (0.12)	ND (0.04)	ND (0.069)	31	ND (0.085)	0.21	0.19	0.19
AOC4-BCW4	01/06/16	0 - 1	N	310	18	ND (0.57)	ND (1.7)	ND (0.51)	9.2 J	ND (0.47)	4 J	ND (0.59)	0.86 J	ND (0.87)	ND (58)	ND (0.94)	ND (0.15)	ND (0.31)	2,700	50	5.9	9.6	9.6
	01/06/16	2 - 3	N	350	22	ND (3.6)	2 J	ND (0.41)	8.4 J	ND (0.99)	3.6 J	ND (0.48)	ND (0.62)	ND (0.68)	ND (41)	ND (0.31)	ND (0.27)	0.47 J	3,000	57	4.7	8.7	8.7
	01/06/16	5 - 6	N	13	ND (0.73)	ND (0.16)	ND (0.19)	ND (0.12)	ND (0.53)	ND (0.11)	ND (0.15)	ND (0.13)	ND (0.096)	ND (0.13)	ND (1.9)	ND (0.14)	ND (0.045)	ND (0.31)	120	1.7 J	0.46	0.44	0.44
	01/06/16	9 - 10	N	ND (0.067)	ND (0.043)	ND (0.055)	ND (0.05)	ND (0.065)	ND (0.049)	ND (0.06)	ND (0.096)	ND (0.075)	ND (0.13)	ND (0.11)	ND (0.22)	ND (0.12)	ND (0.14)	ND (0.11)	6 J	ND (0.028)	0.28	0.19	0.19
AOC4-BCW5	01/06/16	0 - 1	N	ND (1.8)	ND (0.062)	ND (0.079)	0.11 J	ND (0.062)	ND (0.036)	ND (0.057)	ND (0.033)	ND (0.1)	ND (0.073)	ND (0.083)	ND (0.39)	ND (0.071)	ND (0.26)	ND (0.42)	20 J	ND (0.19)	0.46	0.26	0.26
	01/06/16	0 - 1	FD	ND (1.1)	ND (0.056)	ND (0.071)	ND (0.045)	ND (0.061)	ND (0.044)	ND (0.056)	ND (0.042)	ND (0.071)	ND (0.067)	ND (0.057)	ND (0.5)	ND (0.061)	ND (0.053)	ND (0.089)	9.2 J	ND (0.24)	0.18	0.12	0.12
	01/06/16	2 - 3	N	2.5 J	ND (0.15)	ND (0.083)	0.18 J	ND (0.07)	ND (0.069)	ND (0.065)	ND (0.065)	ND (0.081)	ND (0.071)	ND (0.069)	ND (0.072)	ND (0.074)	ND (0.21)	ND (0.12)	20 J	ND (0.34)	0.27	0.23	0.23
	01/06/16	5 - 6	N	13	0.89 J	ND (0.074)	ND (0.087)	ND (0.061)	ND (0.35)	ND (0.057)	ND (0.082)	ND (0.071)	ND (0.068)	ND (0.12)	ND (1.8)	ND (0.13)	ND (0.27)	ND (0.081)	150	2.1 J	0.43	0.5	0.5
	01/06/16	9 - 10	N	11 J	ND (0.37)	ND (0.18)	ND (0.11)	ND (0.11)	0.33 J	ND (0.099)	ND (0.049)	ND (0.12)	ND (0.1)	ND (0.068)	ND (0.11)	ND (0.073)	ND (0.085)	0.15 J	110	ND (0.82)	0.34	0.33	0.33
AOC4-BCW6	01/06/16	0 - 1	N	73	4.5 J	ND (0.52)	ND (0.43)	ND (0.18)	1.8 J	ND (0.26)	ND (1)	ND (0.21)	ND (0.32)	0.54 J	ND (8.9)	ND (0.14)	ND (0.031)	ND (0.17)	820	15 J	1.1	2	2
	01/06/16	2 - 3	N	23	ND (1.4)	0.39 J	0.33 J	ND (0.22)	0.85 J	ND (0.21)	0.44 J	ND (0.26)	ND (0.066)	ND (0.097)	ND (3.3)	ND (0.1)	ND (0.26)	ND (0.34)	190	3.3 J	0.71	0.86	0.86
	01/06/16	5 - 6	N	1.2 J	ND (0.12)	ND (0.049)	ND (0.029)	ND (0.042)	ND (0.053)	ND (0.039)	ND (0.068)	ND (0.049)	ND (0.074)	ND (0.04)	ND (0.2)	ND (0.044)	ND (0.048)	0.23 J	8.3 J	ND (0.093)	0.34	0.13	0.13
	01/06/16	9 - 10	N	ND (0.21)	ND (0.044)	ND (0.056)	ND (0.028)	ND (0.035)	ND (0.028)	ND (0.033)	ND (0.027)	ND (0.041)	ND (0.05)	ND (0.095)	ND (0.17)	ND (0.1)	ND (0.14)	ND (0.081)	ND (1)	ND (0.067)	ND (0.21)	ND (0.14)	ND (0.14)
AOC4-C01	03/02/10	0	N	1,100	45	6.2 J	17	ND (12)	40	6.5 J	29	3.5 J	ND (7.1) *	4.5 J	7.3 J	ND (10)	1.2 J	4.1 J	7,500	65	23	32	32
AOC4-C01S	04/22/10	0	N	12 J	ND (1.4)	ND (0.15)	ND (0.21)	ND (0.3)	ND (0.6)	ND (0.15)	0.53 J	ND (0.22)	ND (0.34)	ND (0.18)	ND (0.96)	ND (0.24)	ND (0.23)	0.58 J	160	2.5 J	1.2	0.73	0.73
AOC4-C02	03/29/10	0	N	690	37	2.2 J	ND (3.9)	ND (5.7)	20	ND (2.9)	9 J	ND (1.2)	2.7 J	2.4 J	3 J	ND (0.86)	ND (0.72)	ND (1.8)	6,700	54	8.4	17	17
AOC4-C03	03/18/10	0	N	8,000	340	28	120	ND (69)	310	36	240	17	ND (71) *	22	51	34	15	10	46,000	310	160	240	240
AOC4-C04	03/18/10	0	N	120	7.8 J	ND (0.58)	3.1 J	1.9 J	6 J	1.3 J	5.3 J	0.88 J	ND (1.6)	ND (0.78)	1.3 J	1.1 J	ND (0.33)	0.93 J	810	7.1 J	4.6	4.9	4.9
AOC4-C05	07/26/10	0	N	370	20	2 J	3.9 J	2.5 J	12 J	2.1 J	6.7 J	2 J	ND (0.15)	1.1 J	ND (17)	ND (1.1)	ND (0.052)	ND (1.2)	2,900	29	4.7	8.9	8.9

TABLE 3-3e

Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC4-C06	07/26/10	0	N	91	5 J	0.64 J	1.4 J	0.82 J	3.7 J	0.66 J	ND (2.4)	1.5 J	ND (0.16)	ND (0.51)	ND (3.8)	ND (0.41)	ND (0.21)	0.85 J	530	7.5 J	2.2	2.6	2.6
AOC4-C06_C07	08/10/10	0	N	67	3.5 J	ND (0.22)	ND (0.61)	ND (0.4)	2.5 J	ND (0.43)	ND (1.3)	ND (0.21)	ND (0.34)	ND (0.18)	ND (4.4)	ND (0.18)	ND (0.14)	ND (0.19)	570	5.6 J	0.97	1.8	1.8
	08/10/10	0	FD	57	4.5 J	ND (0.29)	ND (0.51)	ND (0.67)	ND (0.52)	ND (0.3)	ND (0.49)	ND (0.38)	ND (0.54)	ND (0.26)	ND (5.1)	ND (0.26)	ND (0.14)	ND (0.45)	440	6.6 J	1.2	1.6	1.6
AOC4-D01	03/24/10	0	N	330 J	32 J	3.1 J	5.5 J	4.5 J	14 J	ND (2) J	ND (5.6) J	ND (1.1) J	ND (2.9) J	ND (1.3) J	ND (78) J	2.8 J	ND (0.66) J	ND (2.5) J	2,900 J	76 J	12	14	14
AOC4-D01S	04/12/10	0	N	ND (6.6)	ND (0.35)	ND (0.42)	ND (0.6)	ND (0.4)	ND (0.4)	ND (0.35)	ND (0.4)	ND (0.43)	ND (0.89)	ND (0.57)	ND (1.5)	ND (0.55)	ND (0.18)	ND (0.33)	51	ND (0.98)	1.2	0.9	0.9
AOC4-D02	03/19/10	0	N	74	ND (6.2)	0.59 J	0.81 J	ND (0.62)	2.8 J	ND (0.2)	ND (0.68)	ND (0.29)	ND (0.31)	ND (0.21)	ND (0.25)	ND (0.2)	ND (0.13)	ND (0.46)	870	18 J	0.93	1.8	1.8
AOC4-D03	03/19/10	0	N	470	39	3.7 J	3.1 J	4.5 J	15 J	1.5 J	6.8 J	ND (0.34)	ND (1.5)	ND (0.81)	ND (2.1)	1.2 J	ND (0.3)	1.6 J	5,800	110	6.9	12	12
AOC4-D04	03/19/10	0	N	150	13	1.2 J	1.4 J	1.6 J	ND (5)	0.68 J	ND (2)	ND (0.24)	ND (0.7)	ND (0.56)	ND (1.5)	ND (0.66)	ND (0.11)	1.4 J	1,300	26	3.1	3.5	3.5
AOC4-D05	07/26/10	0	N	7,100	490	22	39	37	210	11 J	85	18	ND (0.3)	3.1 J	25	4 J	0.89 J	1.9 J	66,000	240	48	140	140
AOC4-D06	07/27/10	0	N	140	9 J	0.69 J	1.9 J	1.2 J	5.2 J	0.91 J	2.9 J	ND (0.45)	ND (0.8)	0.7 J	ND (5.5)	ND (0.62)	0.21 J	0.74 J	1,700	10 J	3.1	4.3	4.3
AOC4-D06_D07	08/10/10	0	N	180	11 J	ND (0.62)	2.9 J	ND (1.8)	7.4 J	ND (1.3)	4.6 J	ND (0.42)	ND (0.47)	ND (0.28)	ND (8.3)	ND (0.69)	ND (0.19)	ND (0.61)	1,500	17 J	2.7	4.9	4.9
AOC4-DAM-OS1	02/22/17	0 - 0.2	N	79	6.9 J	1 J	ND (1.1)	0.96 J	2.6 J	ND (1.3)	ND (1.9)	ND (0.28)	ND (0.68)	ND (0.74)	ND (10)	ND (0.98)	ND (0.097)	ND (0.87)	900	16 J	2.4	2.8	2.8
	02/22/17	1 - 1.5	N	200	16	ND (1.5)	3 J	2.4 J	7.9 J	3.1 J	4.9 J	ND (0.39)	1.4 J	2 J	ND (30)	ND (2.1)	ND (0.3)	ND (0.92)	1,700	29	6.6	8.3	8.3
AOC4-DAM-OS2	02/22/17	0 - 0.2	N	280	17	1.2 J	2.8 J	2.1 J	6.7 J	1.9 J	4.9 J	ND (0.17)	ND (1.7)	0.81 J	ND (14)	1.3 J	ND (0.055)	ND (1.1)	4,300	27	5.5	8.2	8.2
	02/22/17	1 - 1.5	N	180	12 J	1.4 J	2.1 J	1.8 J	6.4 J	2.3 J	ND (3.2)	ND (0.65)	ND (1.3)	ND (1.3)	ND (22)	1.7 J	ND (0.088)	ND (1.7)	1,700	17 J	5.7	6.3	6.3
AOC4-E01S	04/22/10	0	N	1,400 J	160 J	ND (13) J	ND (9.1)	ND (20) J	ND (48) J	ND (7.1) J	ND (12) J	ND (0.56) J	ND (1.2) J	ND (12)	ND (310) J	ND (19)	ND (1.1) J	13 J	13,000 J	520 J	47	46	46
AOC4-E02	04/16/10	0	N	1,100	58	7.6 J	3.2 J	3.2 J	14	ND (2.2)	ND (4.4)	ND (0.18)	ND (0.22)	ND (1.3)	ND (64)	3 J	ND (0.12)	3.2 J	74,000 J	240	20	41	41
AOC4-E03	03/25/10	0	N	4,800	360	32	ND (20)	32	110	13	34	ND (0.41)	ND (8) *	8 J	29	14	ND (1.1)	15	42,000 J	630	60	98	98
AOC4-E04	03/25/10	0	N	82 J	15	ND (1.2)	ND (1.3)	ND (3.8)	ND (2.4)	ND (1.9)	---	ND (0.43)	ND (0.51)	6.9 J	1.6 J	4.2 J	ND (0.11)	3.8 J	520	19 J	9.9	4.1	4.1
AOC4-E05	07/27/10	0	N	250 J	23	1.5 J	1.7 J	2.9 J	5.8 J	1.3 J	3.1 J	1.1 J	ND (0.25)	ND (0.67)	ND (3.3)	ND (0.55)	ND (0.13)	0.76 J	4,700 J	26	3.4	6.3	6.3
	07/27/10	0	FD	99 J	7.4 J	0.56 J	1.5 J	1.3 J	4 J	1.1 J	2.9 J	ND (0.53)	ND (0.2)	ND (0.57)	ND (5.1)	ND (0.62)	0.17 J	2.9 J	780 J	8.5 J	4.7	3.3	3.3
AOC4-E06	07/27/10	0	N	120	8.2 J	0.88 J	2.1 J	1.3 J	5.1 J	1 J	3.1 J	2.6 J	ND (0.2)	0.96 J	ND (2.9)	ND (0.57)	ND (0.21)	ND (0.81)	1,000	9.1 J	2.4	3.6	3.6
AOC4-E06_E07	08/10/10	0	N	76	5.7 J	ND (0.21)	1.2 J	1 J	2.8 J	0.64 J	ND (1.6)	ND (0.15)	ND (0.31)	ND (0.15)	ND (5.6)	ND (0.3)	ND (0.081)	0.54 J	580	7.2 J	1.7	2.2	2.2
AOC4-F01S	04/22/10	0	N	ND (11)	2.6 J	0.34 J	ND (0.34)	ND (0.68)	0.83 J	ND (0.63)	ND (0.36)	ND (0.17)	ND (0.17)	ND (0.14)	ND (2.2)	ND (0.81)	0.41 J	ND (1.2)	120	5.1 J	1.8	1.1	1.1
AOC4-F02	03/31/10	0	N	810	81	10 J	ND (3.5)	ND (13)	ND (5.7)	ND (4.4)	ND (6.7)	ND (0.6)	ND (1.6)	8.1 J	ND (5.7)	12 J	ND (0.28)	8.8	11,000	230	27	20	20
AOC4-F03	03/31/10	0	N	710	90	ND (10)	ND (5.4)	ND (19)	ND (18)	10 J	---	ND (3.3)	ND (2.7)	15	9.5 J	26	ND (0.58)	17	6,700	240	52	26	26
AOC4-F04	03/31/10	0	N	250 J	38	ND (4.5)	ND (1.7)	5.9 J	ND (8.9)	4.2 J	---	ND (0.91)	ND (0.96)	ND (3.3)	ND (2.5)	ND (13)	ND (0.25)	11	1,500	82	20	8.9	8.9
AOC4-F05	08/09/10	0	N	4.7 J	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	30	ND (0.01)	0.031	0.072	0.072
AOC4-G01S	04/22/10	0	N	800	120	9.3 J	ND (0.73)	ND (24)	ND (0.77)	19	ND (0.72)	ND (0.43)	ND (2)	12 J	7.7 J	48	ND (0.51)	27	8,100	280	84	35	35
AOC4-G04	08/04/10	0	N	1,300	170	13	23	35	48	ND (0.01)	ND (0.01)	5.2 J	ND (0.01)	ND (0.01)	ND (0.01)	48	ND (0.01)	35	9,300	210	93	47	47
AOC4-G05	08/05/10	0	N	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	18 J	0.53 J	0.025	0.021	0.021

TABLE 3-3e

Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC4-G06	08/09/10	0	N	430	67	7.3 J	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	6.6 J	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	3,300	190	2.2	6.3	6.3
AOC4-H04	07/27/10	0	N	190	110	11 J	ND (0.27)	38	ND (0.29)	35	ND (0.26)	ND (0.22)	ND (0.83)	22	18	67	ND (0.075)	49	1,600	110	130	39	39
AOC4-H05	08/05/10	0	N	12 J	6.8 J	0.89 J	ND (0.01)	2 J	ND (0.01)	1.6 J	ND (0.01)	ND (0.01)	ND (0.01)	1.1 J	0.93 J	2.7 J	ND (0.01)	2.4 J	90	8.1 J	5.8	1.8	1.8
AOC4-I04	05/19/10	0	N	110	25	ND (3)	ND (0.47)	8.6 J	ND (0.52)	9.4 J	ND (0.51)	ND (0.42)	ND (0.74)	5.9 J	3.7 J	22	ND (1)	11	920	43	37	13	13
AOC4-I05	05/24/10	0	N	27	ND (5.6)	ND (3.9)	1.8 J	1.7 J	ND (2.9)	ND (1.4)	2.9 J	ND (4.2)	ND (1)	ND (0.76)	2 J	ND (1)	1.9 J	ND (2.5)	250	ND (12)	5.3	4.3	4.3
AOC4-I06	08/11/10	0	N	29	3.1 J	0.43 J	ND (0.01)	ND (0.01)	ND (0.01)	0.51 J	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.63 J	ND (0.01)	0.98 J	330	6.1 J	1.8	0.78	0.78
AOC4-I06_I07	08/13/10	0	N	160	14	ND (1.2)	1.9 J	ND (0.27)	6.2 J	ND (1.2)	2.9 J	ND (0.31)	ND (0.55)	ND (1.4)	ND (28)	1.8 J	0.25 J	1.5 J	1,500	34	6.3	6	6
AOC4-J02	05/10/10	0	N	210	21	2.6 J	1.4 J	ND (1.4)	6 J	ND (3.2)	3.1 J	ND (0.96)	ND (0.48)	ND (0.4)	ND (0.78)	0.59 J	0.33 J	ND (0.47)	2,500	120	2.9	5.3	5.3
AOC4-J03	05/17/10	0	N	4,400	390	34	26	ND (26)	110	ND (63)	42	ND (0.4)	ND (0.7)	ND (0.35)	ND (770)	ND (8.2)	1.9 J	ND (3.9)	50,000	1,900	72	130	130
AOC4-J04	06/15/10	0	N	1,400	140	ND (7.7)	17	ND (10)	47	ND (4.5)	29	ND (0.48)	ND (14) *	ND (0.78)	ND (140)	ND (0.65)	ND (0.64)	3 J	12,000	370	27	44	44
AOC4-J05	06/07/10	0	N	55	ND (6.5)	ND (0.81)	ND (0.43)	ND (0.91)	1.8 J	ND (0.95)	1.3 J	ND (0.4)	ND (0.28)	ND (0.25)	0.62 J	ND (0.25)	ND (0.32)	ND (0.63)	580	20 J	1.2	1.6	1.6
AOC4-J06	06/07/10	0	N	1,600	150	13	12 J	ND (19)	57	ND (8.5)	27	ND (0.53)	ND (0.4)	ND (0.39)	14	ND (0.38)	ND (0.48)	ND (5.3)	14,000	450	15	35	35
AOC4-J06_J07	08/13/10	0	N	340	23	ND (1.8)	3.6 J	ND (0.27)	12 J	1.6 J	7.4 J	ND (0.31)	ND (0.63)	ND (0.28)	ND (49)	ND (1.4)	ND (0.17)	ND (1.4)	2,900	57	6.4	10	10
AOC4-K02	05/17/10	0	N	120 J	26	2.7 J	ND (0.93)	2.1 J	5.8 J	ND (1.3)	ND (2.1)	ND (0.28)	ND (0.92)	ND (0.37)	ND (1.6)	ND (0.21)	ND (0.29)	0.54 J	960 J	54	2.3	3.6	3.6
	05/17/10	0	FD	440 J	43	5.3 J	6 J	4.5 J	17	3 J	11 J	ND (2.6)	ND (0.4)	3 J	3 J	4.3 J	1 J	3.8 J	5,100 J	110	14	14	14
AOC4-K03	05/17/10	0	N	110	26	2.9 J	ND (1.1)	1.8 J	ND (4.8)	ND (1.7)	ND (2)	ND (1.2)	ND (0.91)	ND (0.28)	ND (44)	0.82 J	ND (0.14)	ND (0.5)	910	55	4.8	5.4	5.4
AOC4-K04	06/16/10	0	N	1,300	81	7.8 J	11 J	9.8 J	42	7.2 J	24	ND (1.2)	ND (0.82)	5.5 J	6.7 J	ND (0.84)	0.94 J	4.7 J	8,600	200	16	29	29
AOC4-K05	06/15/10	0	N	1,700	350	32	19	ND (46)	68	32	34	12 J	ND (0.54)	24	50	ND (0.57)	ND (1.7)	ND (19)	14,000	770	37	52	52
AOC4-K06	06/15/10	0	N	53	ND (2.8)	ND (0.47)	ND (0.63)	ND (0.49)	1.8 J	ND (0.34)	ND (0.98)	ND (0.33)	ND (0.36)	ND (0.21)	ND (10)	ND (0.31)	ND (0.37)	ND (0.32)	450	15 J	1.4	1.9	1.9
AOC4-K07	06/15/10	0	N	210	18	ND (1.2)	ND (1.6)	ND (1.7)	7.9 J	1 J	ND (3.9)	ND (0.4)	ND (0.93)	ND (0.42)	ND (29)	ND (0.42)	ND (0.25)	ND (0.88)	1,900	48	3.8	6.3	6.3
AOC4-L04	05/18/10	0	N	67	ND (6.3)	ND (2)	ND (1.1)	ND (0.87)	ND (3.1)	0.71 J	ND (1.8)	ND (2)	ND (0.48)	ND (0.75)	ND (1)	ND (0.8)	ND (0.67)	ND (1)	630	24 J	2.1	2.2	2.2
AOC4-L05	06/28/10	0	N	58	ND (5.4)	ND (0.62)	0.7 J	0.82 J	ND (2.2)	ND (0.3)	ND (1.2)	ND (0.42)	ND (0.26)	ND (0.3)	ND (7.2)	ND (0.3)	ND (0.097)	ND (0.067)	990	ND (11)	1.1	1.9	1.9
AOC4-L06	06/28/10	0	N	760 J	61	ND (0.43)	ND (1.2)	ND (5.7)	24	ND (2.8)	3.9 J	2.8 J	ND (0.21)	ND (0.61)	ND (100)	ND (1.6)	ND (0.24)	ND (0.71)	17,000 J	160	11	22	22
	06/28/10	0	FD	340 J	32	ND (0.3)	ND (0.53)	ND (1.5)	7.7 J	ND (0.89)	ND (1.5)	ND (0.28)	ND (0.15)	ND (0.41)	ND (41)	0.7 J	ND (0.13)	ND (0.92)	7,000 J	180	5	9.3	9.3
AOC4-L07	09/16/10	0	N	290	20	ND (0.74)	0.82 J	ND (0.26)	9.3 J	ND (1.9)	ND (1.4)	ND (0.32)	ND (0.18)	ND (0.21)	ND (57)	ND (0.61)	ND (0.16)	ND (0.24)	4,900	60	4.8	8.9	8.9
	09/16/10	0	FD	410	25	ND (0.38)	ND (0.61)	ND (0.29)	11 J	ND (1.9)	1.8 J	ND (0.35)	ND (0.23)	ND (0.26)	ND (65)	ND (0.26)	ND (0.12)	ND (0.33)	7,100	74	5.5	11	11
AOC4-L07_L08	09/20/10	0	N	1,400	100	8.2 J	2 J	9.2 J	35	ND (4.9)	5.4 J	5.1 J	ND (0.35)	ND (0.3)	ND (210)	ND (2)	ND (0.13)	ND (0.25)	25,000	310	20	40	40
AOC4-M05	09/20/10	0	N	41	2.5 J	ND (0.26)	0.33 J	ND (0.24)	1.2 J	ND (0.15)	ND (0.21)	ND (0.2)	ND (0.14)	ND (0.059)	ND (4.5)	ND (0.057)	ND (0.091)	ND (0.2)	680	5.9 J	0.68	1.2	1.2
AOC4-M06	07/08/10	0	N	1,600	110	6 J	2.3 J	9.6 J	39	ND (0.12)	5.9 J	5 J	0.5 J	1.1 J	ND (160)	2.6 J	ND (0.19)	0.59 J	38,000	270	21	44	44
	02/07/17	2 - 3	N	43	2.7 J	ND (0.5)	ND (0.25)	ND (0.16)	ND (0.96)	ND (0.15)	ND (0.45)	ND (0.19)	0.21 J	ND (0.096)	ND (6)	ND (0.1)	ND (0.14)	ND (0.086)	590	ND (6)	0.87	1.3	1.3
AOC4-M07	09/22/10	0	N	140	8.4 J	ND (0.35)	ND (0.33)	ND (0.24)	3.3 J	ND (0.76)	ND (0.38)	ND (0.29)	ND (0.24)	ND (0.11)	ND (22)	ND (0.11)	ND (0.16)	ND (0.27)	2,900	26	2.1	4.1	4.1

TABLE 3-3e
Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC4-M07_M08	09/22/10	0	N	1,900	100	ND (0.73)	3.8 J	ND (8.9)	46	ND (5.5)	ND (9.2)	ND (0.43)	ND (0.34)	ND (1.5)	ND (170)	ND (2.3)	ND (0.3)	0.61 J	33,000	230	19	45	45
AOC4-M08	09/22/10	0	N	2,600	160	13	3.5 J	ND (16)	62	ND (9.7)	ND (8.7)	7.8 J	ND (0.45)	1.4 J	ND (310)	3.4 J	ND (0.31)	ND (0.45)	41,000	400	31	66	66
AOC4-M08_M09	09/23/10	0	N	1,600	74	6.7 J	7 J	ND (6.9)	38	2.4 J	13	ND (0.5)	ND (0.48)	ND (1.5)	ND (140)	2.1 J	ND (0.22)	ND (0.88)	27,000	210	18	39	39
AOC4-M10	10/01/10	0	N	2,200	97	14	18	ND (14)	77	ND (13)	ND (21)	ND (1.1)	ND (1.2)	ND (0.77)	ND (0.94)	5.1 J	ND (0.85)	ND (1.4)	22,000	230	17	44	44
AOC4-N05_N06	07/08/10	0	N	1,100	87	ND (0.27)	2.3 J	6.9 J	30	ND (0.087)	4.8 J	3.3 J	ND (0.16)	ND (0.89)	ND (120)	2.2 J	ND (0.14)	ND (0.49)	34,000	290	16	34	34
AOC4-N06	09/23/10	0	N	2,300	170	ND (0.86)	5.8 J	ND (13)	62	ND (6.8)	13	6.8 J	ND (0.36)	1.6 J	ND (270)	3.2 J	ND (0.36)	ND (0.77)	50,000	410	31	64	64
AOC4-N07	09/23/10	0	N	200	12 J	ND (0.53)	ND (0.46)	ND (0.51)	4.7 J	ND (0.99)	ND (1.1)	ND (0.61)	ND (0.27)	ND (0.18)	ND (29)	ND (0.27)	ND (0.16)	0.49 J	3,500	57	3.2	5.6	5.6
AOC4-N08	09/23/10	0	N	20	ND (0.97)	ND (0.34)	ND (0.25)	ND (0.43)	ND (0.38)	ND (0.12)	ND (0.25)	ND (0.17)	ND (0.19)	ND (0.085)	ND (3.4)	ND (0.082)	ND (0.1)	ND (0.36)	240	3.4 J	0.65	0.71	0.71
AOC4-O07	10/01/10	0	N	570	36	ND (1.1)	1.1 J	4.4 J	17	ND (4.7)	ND (2.3)	ND (0.41)	ND (0.38)	ND (0.43)	ND (0.36)	ND (0.42)	ND (0.19)	ND (0.29)	9,300	120	3.6	12	12
AOC4-O08	10/01/10	0	N	390	23	2.3 J	ND (0.68)	ND (0.27)	11 J	ND (2)	ND (2.4)	ND (0.32)	ND (0.25)	ND (0.53)	ND (67)	ND (0.68)	ND (0.17)	ND (0.34)	6,900	84	5.8	11	11
PA-17	01/27/16	0 - 1	N	330 J	11 J	ND (0.79) J	ND (1.2) J	ND (0.51) J	6.5 J	ND (0.84) J	3.1 J	ND (0.59) J	ND (0.86) J	ND (0.98) J	ND (19) J	ND (0.25) J	ND (0.091) J	ND (0.77) J	2,300 J	24 J	3.2	6.7	6.7

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the Interim Screening Level are circled.

--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-3f

Constituent Concentrations in Soil Compared to Screening Values
AOC 4 – Debris Ravine, Outside Fence Line
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	101	121 / 124 (98%)	280	43	(5.98)	28	(16)	NA	(NE)	NA	(NA)	NA	(NE)	28	(16)
TEQ Human	ng/kg	101	121 / 124 (98%)	250	60	(5.58)	NA	(NE)	10	(50)	NA	(NA)	2	(220)	10	(50)
TEQ Mammals	ng/kg	101	121 / 124 (98%)	250	60	(5.58)	60	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	60	(5.58)
Metals																
Antimony	mg/kg	98	3 / 119 (2.5%)	2.7	NA	(NE)	3	(0.285)	0	(31)	NA	(NA)	0	(470)	3	(0.285)
Arsenic	mg/kg	98	47 / 119 (39%)	8.5	0	(11)	0	(11.4)	0	(0.11) *	NA	(NA)	0	(0.36) *	0	(11)
Barium	mg/kg	98	119 / 119 (100%)	1,300	14	(410)	14	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	14	(410)
Beryllium	mg/kg	98	0 / 119 (0%)	ND (5.5) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	98	7 / 119 (5.9%)	1.7	6	(1.1)	6	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	6	(1.1)
Chromium, Hexavalent	mg/kg	94	20 / 114 (18%)	16	14	(0.83)	0	(139.6)	14	(0.3)	NA	(NA)	2	(6.3)	14	(0.83)
Chromium, total	mg/kg	98	119 / 119 (100%)	160	49	(39.8)	49	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	49	(39.8)
Cobalt	mg/kg	98	119 / 119 (100%)	20	17	(12.7)	9	(13)	0	(23)	NA	(NA)	0	(350)	17	(12.7)
Copper	mg/kg	98	119 / 119 (100%)	790	51	(16.8)	39	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	51	(16.8)
Lead	mg/kg	98	118 / 119 (99%)	220	17	(8.39)	17	(0.0166) *	2	(80)	NA	(NA)	0	(320)	17	(8.39)
Mercury	mg/kg	98	6 / 119 (5.0%)	0.74	NA	(NE)	6	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	6	(0.0125)
Molybdenum	mg/kg	98	0 / 119 (0%)	ND (5.5) ‡	0	(1.37)	0	(2.25)	0	(390)	NA	(NA)	0	(5,800)	0	(1.37)
Nickel	mg/kg	98	119 / 119 (100%)	75	42	(27.3)	42	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	42	(27.3)
Selenium	mg/kg	98	0 / 119 (0%)	ND (5.5) ‡	0	(1.47)	0	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	0	(1.47)
Silver	mg/kg	98	0 / 119 (0%)	ND (5.5) ‡	NA	(NE)	0	(5.15)	0	(390)	NA	(NA)	0	(1,500)	0	(5.15)
Thallium	mg/kg	98	0 / 119 (0%)	ND (11) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	98	119 / 119 (100%)	100	30	(52.2)	30	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	30	(52.2)
Zinc	mg/kg	98	119 / 119 (100%)	410	9	(58)	9	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	9	(58)
Polycyclic Aromatic Hydrocarbons																
1-Methyl naphthalene	µg/kg	101	1 / 123 (0.81%)	8.8	NA	(NE)	NA	(NE)	0	(18,000)	NA	(NA)	0	(73,000)	0	(18,000)
2-Methyl naphthalene	µg/kg	101	1 / 123 (0.81%)	12	NA	(NE)	NA	(NE)	0	(240,000)	NA	(NA)	0	(3,000,000)	0	(240,000)
Acenaphthene	µg/kg	101	2 / 123 (1.6%)	22	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Acenaphthylene	µg/kg	101	1 / 123 (0.81%)	6	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	101	11 / 123 (8.9%)	95	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Benzo (a) anthracene	µg/kg	101	52 / 123 (42%)	1,000	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	101	48 / 123 (39%)	750	NA	(NE)	NA	(NE)	9	(110)	NA	(NA)	0	(2,100)	9	(110)
Benzo (b) fluoranthene	µg/kg	101	58 / 123 (47%)	1,400	NA	(NE)	NA	(NE)	2	(1,100)	NA	(NA)	0	(21,000)	2	(1,100)
Benzo (ghi) perylene	µg/kg	101	46 / 123 (37%)	550	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	101	42 / 123 (34%)	1,400	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	101	55 / 123 (45%)	1,200	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	101	22 / 123 (18%)	93	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Fluoranthene	µg/kg	101	64 / 123 (52%)	2,400	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Fluorene	µg/kg	101	1 / 123 (0.81%)	14	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	101	42 / 123 (34%)	440	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Naphthalene	µg/kg	101	1 / 123 (0.81%)	6.5	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	101	39 / 123 (32%)	1,200	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	101	65 / 123 (53%)	2,200	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)

TABLE 3-3f

Constituent Concentrations in Soil Compared to Screening Values
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
PAH Low molecular weight	µg/kg	101	123 / 123 (100%)	1,337	11	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	101	123 / 123 (100%)	10,163	23	(267.4)	12	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	12	(1,160)
B(a)P Equivalent	µg/kg	101	66 / 123 (54%)	1,100	19	(55)	NA	(NE)	13	(110)	NA	(NA)	0	(2,100)	13	(110)
Polychlorinated biphenyls																
Aroclor 1016	µg/kg	101	8 / 123 (6.5%)	60	NA	(NE)	NA	(NE)	0	(4,100)	NA	(NA)	0	(27,000)	0	(4,100)
Aroclor 1254	µg/kg	101	67 / 123 (54%)	5,900	NA	(NE)	NA	(NE)	23	(240)	NA	(NA)	10	(970)	23	(240)
Aroclor 1260	µg/kg	101	12 / 123 (9.8%)	640	NA	(NE)	NA	(NE)	2	(240)	NA	(NA)	0	(990)	2	(240)
Total PCBs	µg/kg	101	70 / 123 (57%)	6,281	NA	(NE)	27	(204)	26	(230)	NA	(NA)	10	(940)	27	(204)
Total Petroleum Hydrocarbons																
TPH as motor oil	mg/kg	1	1 / 1 (100%)	31	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-4a
Sample Results: Metals
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC4-30-OS3	10/17/13	2 - 3	N	ND (2)	5.1	180	ND (1)	ND (1)	ND (0.4)	15	4.5	6.5	2.7	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	26	20
AOC4-17-OS1	10/17/13	2 - 3	N	ND (2) J	5.2	150	ND (1)	ND (1)	ND (0.41)	16	5.5	11	5.1	ND (0.1)	ND (1) J	13	ND (1)	ND (1) J	ND (2) J	28	27
AOC4-32-OS5	10/17/13	2 - 3	N	ND (2)	4.2	180	ND (1)	ND (1)	ND (0.4)	21	5.7	9.8	4.9	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2)	29	26
AOC4-18-OS2	10/17/13	2 - 3	N	ND (2)	5	210	ND (1)	ND (1)	ND (0.41)	28	7	11	5.5	ND (0.1)	ND (1)	21	ND (1)	ND (1)	ND (2)	37	30
AOC4-31-OS4	10/17/13	2 - 3	N	ND (2)	4.6	210	ND (1)	ND (1)	ND (0.41)	20	6.3	14	5.4	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2)	31	29
AOC4-32-OS5	10/17/13	5 - 6	N	ND (2)	4.8	230	ND (1)	ND (1)	ND (0.4)	26	6.4	11	5.2	ND (0.1)	ND (1)	19	ND (1)	ND (1)	ND (2)	35	29
AOC4-31-OS4	10/17/13	5 - 6	N	ND (2)	5.1	150	ND (1)	ND (1)	ND (0.41)	26	7.4	13	5.2	ND (0.1)	ND (1)	21	ND (1)	ND (1)	ND (2)	36	31
AOC4-30-OS3	10/17/13	5 - 6	N	ND (2)	4.7	260	ND (1)	ND (1)	ND (0.41)	36	9.1	**17**	4.2	ND (0.1)	ND (1)	26	ND (1)	ND (1)	ND (2)	41	34
AOC4-18-OS2	10/17/13	5 - 6	N	ND (2)	4.5	140	ND (1)	ND (1)	ND (0.4)	16	5.1	8.7	5.3	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	26	26
AOC4-17-OS1	10/17/13	5 - 6	N	ND (2)	4.2	300 J	ND (1)	ND (1)	ND (0.4)	37	**13**	**27**	2.4	ND (0.1)	ND (1)	**33**	ND (1)	ND (1)	ND (2)	**57**	36
	10/17/13	5 - 6	FD	ND (2)	3.9	230 J	ND (1)	ND (1)	ND (0.41)	38	**13**	**28**	2.4	ND (0.1)	ND (1)	**33**	ND (1)	ND (1)	ND (2)	**58**	36
AOC4-17	12/01/15	2 - 3	N	ND (2.2)	4.8	170	ND (1.1)	ND (1.1)	---	**41**	12	**19**	3.9	ND (0.11)	ND (1.1)	**35**	ND (1.1)	ND (1.1)	ND (2.2)	48	39
AOC4-18	12/01/15	2 - 3	N	ND (2.1)	4	150	ND (1)	ND (1)	---	20	6.5	12	8.3	ND (0.1)	ND (1)	17	ND (1)	ND (1)	ND (2.1)	29	39
AOC4-23	12/06/15	0 - 1	N	ND (2)	3.5	130	ND (1)	ND (1)	---	22	6.8	**17**	5.1	ND (0.1)	ND (1)	18	ND (1)	ND (1)	ND (2)	27	42
	12/06/15	2 - 3	N	ND (2)	2.5	110	ND (1)	ND (1)	---	**40**	9	16	4.4	ND (0.1)	ND (1)	26	ND (1)	ND (1)	ND (2)	35	35
AOC4-24	12/06/15	0 - 1	N	ND (2)	2.6	130	ND (1)	ND (1)	---	**40**	8.2	**17**	7.4	ND (0.1)	ND (1)	20	ND (1)	ND (1)	ND (2)	34	42
	12/06/15	2 - 3	N	ND (2)	5	**450**	ND (1)	ND (1)	---	22	5.1	9.1	3.8	ND (0.1)	ND (1)	14	ND (1)	ND (1)	ND (2)	29	27
AOC4-25	11/20/15	0 - 1	N	ND (2)	4.9	120	ND (1)	ND (1)	---	13	4.4	15	6.7	ND (0.1)	ND (1)	8.6	ND (1)	ND (1)	ND (2)	17	30
AOC4-26	11/20/15	0 - 1	N	ND (2)	5.4	160	ND (1)	ND (1)	---	34	9.4	**21**	6.5	ND (0.1)	ND (1)	24	ND (1)	ND (1)	ND (2)	38	44
	11/20/15	2 - 3	N	ND (2)	5.8	360	ND (1)	ND (1)	---	**56**	**17**	**54**	5.3	ND (0.1)	ND (1)	**40**	ND (1)	ND (1)	ND (2)	**59**	50
	02/01/17	5 - 6	N	ND (2)	4.9	280	ND (1)	**1.3**	ND (0.2)	**51**	**14**	**38**	1.9	ND (0.1)	ND (1)	**38**	ND (1) J	ND (1)	ND (2)	47	45
AOC4-27	11/20/15	0 - 1	N	ND (2)	5.3	220	ND (1)	ND (1)	---	**69**	12	**31**	**22**	ND (0.1)	ND (1)	**33**	ND (1)	ND (1)	ND (2)	47	**61**
	11/20/15	2 - 3	N	ND (2)	5.9	290	ND (1)	ND (1)	---	**72**	**19**	**38**	6.4	ND (0.1)	ND (1)	**43**	1.1	ND (1)	ND (2)	**63**	50
	02/01/17	5 - 5.5	N	ND (2.1)	4.2	260	ND (1)	**1.3**	ND (0.21)	**59**	12	**270**	1.8	ND (0.1)	ND (1)	**40**	ND (1) J	ND (1)	ND (2.1)	41	41
AOC4-28	11/20/15	0 - 1	N	ND (2)	4.3	190	ND (1)	ND (1)	---	34	5.2	**17**	**26**	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	20	**65**
AOC4-29	12/02/15	0 - 1	N	ND (2) J	3.6	110	ND (1)	ND (1)	ND (0.2)	31	7.6	**18**	6.5	ND (0.1)	ND (1)	22	ND (1) J	ND (1) J	ND (2)	31	**170**
	12/03/15	2 - 3	N	ND (2.1)	3.8	170	ND (1)	ND (1)	ND (0.21)	30	8.7	16	3.9	ND (0.1)	ND (1)	26	ND (1)	ND (1)	ND (2.1)	36	33
	12/03/15	5 - 6	N	ND (2.1)	4.2	150	ND (1)	ND (1)	ND (0.21)	16	5.4	9.3	3.4	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2.1)	24	25
AOC4-30	12/02/15	0 - 1	N	ND (2)	4.5	95	ND (1)	ND (1)	ND (0.2)	27	7.9	16	4.2	ND (0.1)	ND (1)	24	ND (1)	ND (1)	ND (2)	32	40
	12/03/15	2 - 3	N	ND (2)	3.6	81	ND (1)	ND (1)	ND (0.2)	12	4.3	6.7	2.7	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	22	20
	12/03/15	5 - 6	N	ND (2)	3.8	140	ND (1)	ND (1)	ND (0.2)	25	5.2	6.3	2.3	ND (0.1)	ND (1)	20	ND (1)	ND (1)	ND (2)	24	24
AOC4-31	12/02/15	0 - 1	N	ND (2)	3.3	140	ND (1)	ND (1)	ND (0.2)	28	7.9	14	4.3	ND (0.1)	ND (1)	20	ND (1)	ND (1)	ND (2)	31	39
	12/02/15	2 - 3	N	ND (2.1)	3.3	140	ND (1.1)	ND (1.1)	ND (0.21)	26	7.2	16	4	ND (0.1)	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.1)	31	30
	12/02/15	5 - 6	N	ND (2.1)	3.7	150	ND (1)	ND (1)	ND (0.21)	5.4	2.8	3.9	3	ND (0.1)	ND (1)	5.7	ND (1)	ND (1)	ND (2.1)	13	15
AOC4-32	12/02/15	0 - 1	N	ND (2)	3.6	220	ND (1)	ND (1)	0.37	**45**	7.7	**25**	**9.8**	ND (0.1)	ND (1)	24	ND (1)	ND (1)	ND (2)	34	**440**
	12/02/15	2 - 3	N	ND (2.1)	3.5	160	ND (1)	ND (1)	ND (0.21)	26	7.7	16	4.2	ND (0.1)	ND (1)	26	ND (1)	ND (1)	ND (2.1)	33	36
	12/02/15	5 - 6	N	ND (2.1)	3.5	140	ND (1)	ND (1)	ND (0.21)	28	7.4	12	4.3	ND (0.1)	ND (1)	22	ND (1)	ND (1)	ND (2.1)	31	37

TABLE 3-4a
Sample Results: Metals
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC4-36	01/05/17	0 - 0.5	N	ND (2.1)	2.8	160	ND (1)	ND (1)	0.23	33	9.2	14	3.1	ND (0.1)	ND (1)	22	ND (1) J	ND (1)	ND (2.1) J	33	36
	01/05/17	0.9 - 1	N	ND (2.2)	5.8	310	ND (1.1)	ND (1.1)	ND (0.22)	16	5	7.6	2.2	ND (0.11)	ND (1.1)	13	ND (1.1) J	ND (1.1)	ND (2.2) J	24	27
AOC4-37	02/04/17	0 - 0.5	N	ND (2.1)	10	**1,100**	ND (1)	ND (1)	ND (0.21)	22	7.1	8.3	3.8	ND (0.1)	ND (1)	21	ND (1) J	ND (1)	ND (2.1)	31	31
AOC4-38	02/02/17	0 - 0.5	N	ND (2.1)	3.9	130	ND (1.1)	ND (1.1)	0.44	38	8.8	**28**	4.7	ND (0.11)	ND (1.1)	21	ND (1.1) J	ND (1.1)	ND (2.1)	33	44
	02/02/17	2 - 2.2	N	ND (2.1)	3.9	130	ND (1.1)	**1.2**	0.33	34	10	16	1.9	ND (0.11)	ND (1.1)	**28**	ND (1.1) J	ND (1.1)	ND (2.1)	36	41
AOC4-39	01/05/17	0 - 0.5	N	ND (2.3)	5.2	290	ND (1.1)	ND (1.1)	0.7	**62**	8.9	**56 J**	**23**	ND (0.11)	ND (1.1)	22	ND (1.1) J	ND (1.1)	ND (2.3) J	31	53
	01/05/17	0 - 0.5	FD	ND (2.2)	4.6	270	ND (1.1)	ND (1.1)	0.78	**58**	9.4	**30 J**	**27**	ND (0.11)	ND (1.1)	23	ND (1.1) J	ND (1.1)	ND (2.2) J	33	51
	01/05/17	1.5 - 1.7	N	ND (2.2)	11	**840**	ND (1.1)	ND (1.1)	ND (0.22)	18	5.2	**24**	3.5	ND (0.11)	ND (1.1)	10	ND (1.1) J	ND (1.1)	ND (2.2) J	28	22
AOC4-40	02/06/17	0 - 0.5	N	ND (2.1)	2.7	140	ND (1)	**1.2**	0.39	**58 J**	12	**19**	**26 J**	ND (0.1)	ND (1)	**32 J**	ND (1) J	ND (1)	ND (2.1)	31 J	47
	02/06/17	0 - 0.5	FD	ND (2.1)	4.8	160	ND (1)	**1.5**	0.47	**98 J**	**13**	16	**110 J**	ND (0.1)	ND (1)	**43 J**	ND (1) J	ND (1)	ND (2.1)	41 J	52
	02/06/17	0.5 - 1	N	ND (2.2)	ND (1.1) *	330	ND (1.1)	**2.1**	ND (0.22)	**120**	**28**	12	**15**	ND (0.11)	ND (1.1)	**69**	ND (1.1) J	ND (1.1)	ND (2.2) J	**82**	**60**
AOC4-41	02/02/17	0 - 0.5	N	ND (2.1)	3.2	110	ND (1)	ND (1)	ND (0.21)	**40**	8.8	**19**	5.6	ND (0.1)	ND (1)	24	ND (1) J	ND (1)	ND (2.1)	29	53
AOC4-42	02/04/17	0 - 0.5	N	ND (2.1) J	4.2	140	ND (1)	ND (1)	ND (0.21)	24 J	5.6	12	7.9	ND (0.1)	ND (1)	12	ND (1) J	ND (1)	ND (2.1) J	20	33
	02/04/17	2 - 3	N	ND (2.1)	2.8	130	ND (1)	1	ND (0.21)	35	9.3	13	2	ND (0.1)	ND (1)	**30**	ND (1) J	ND (1)	ND (2.1)	33	33
	02/04/17	5 - 6	N	ND (2)	3.3	130	ND (1)	ND (1)	ND (0.2)	29	8.3	14	1.8	ND (0.1)	ND (1)	26	ND (1) J	ND (1)	ND (2)	31	30
	02/04/17	7 - 7.5	N	ND (2.1)	3.3	90	ND (1)	ND (1)	ND (0.21)	28	8.6	15	2.3	ND (0.1)	ND (1)	25	ND (1) J	ND (1)	ND (2.1)	31	31
AOC4-L01	05/14/10	0	N	ND (2.1)	ND (1.1) *	230	ND (1.1)	ND (1.1)	ND (0.43)	**54**	**14**	**24**	4.2	ND (0.1)	ND (1.1)	**37**	ND (1.1)	ND (1.1)	ND (2.1)	**63**	42
AOC4-L02	05/14/10	0	N	ND (2.1)	ND (1.1) *	340	ND (1.1)	ND (1.1)	ND (0.42)	**53**	**13**	**25**	4.4	ND (0.11)	ND (1.1)	**37**	ND (1.1)	ND (1.1)	ND (2.1)	**61**	44
AOC4-L03	05/13/10	0	N	ND (2.1)	ND (1.1) *	160	ND (1.1)	ND (1.1)	ND (0.43)	**53**	12	**28**	4.5	ND (0.1)	ND (1.1)	**36**	ND (1.1)	ND (1.1)	ND (2.1)	**60**	43
AOC4-M01	09/30/10	0	N	ND (2.2)	ND (1.1) *	180	ND (1.1)	ND (1.1)	ND (0.43)	**51**	12	**23**	4.6	ND (0.11)	ND (1.1)	**37**	ND (1.1)	ND (1.1)	ND (2.2)	**53**	43
AOC4-M02	09/30/10	0	N	ND (2.1)	ND (1) *	230	ND (1)	ND (1)	ND (0.42)	**47**	11	**22**	4.1	ND (0.1)	ND (1)	**32**	ND (1)	ND (1)	ND (2.1)	51	38
AOC4-M03	10/04/10	0	N	ND (2.1)	ND (1.1) *	**650**	ND (1.1)	ND (1.1)	ND (0.43)	**51**	12	**24**	3.2	ND (0.1)	ND (1.1)	**38**	ND (1.1)	ND (1.1)	ND (2.1)	**54**	39
AOC4-M04	10/05/10	0	N	ND (2.1) J	ND (1.1) *	240 J	ND (1.1) J	ND (1.1) J	ND (0.42)	30	7.9 J	11	3.6 J	ND (0.1)	ND (1.1) J	25	ND (1.1) J	ND (1.1)	ND (2.1) J	38	33
AOC4-N01	09/30/10	0	N	ND (2)	ND (1) *	130	ND (1)	ND (1)	ND (0.4)	22	5.2	9.5	5.4	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2)	26	32
AOC4-N02	09/30/10	0	N	ND (2.1)	ND (1) *	200	ND (1)	ND (1)	ND (0.41)	31	8.5	13	3.3	ND (0.1)	ND (1)	24	ND (1)	ND (1)	ND (2.1)	39	30
AOC4-N03	10/04/10	0	N	ND (2.1)	ND (1.1) *	170	ND (1.1)	ND (1.1)	ND (0.43)	23	6.4	11	5	ND (0.11)	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1)	28	30
AOC4-N04	10/05/10	0	N	ND (2.1)	ND (1.1) *	150	ND (1.1)	ND (1.1)	ND (0.42)	36	9	15	3.9	ND (0.11)	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1)	42	32
AOC4-N05	10/05/10	0	N	ND (2.1)	ND (1) *	240	ND (1)	ND (1)	ND (0.41)	34	8.9	14	4.1	ND (0.1)	ND (1)	27	ND (1)	ND (1)	ND (2.1)	41	32
AOC4-O02	10/04/10	0	N	ND (2.1)	ND (1) *	150	ND (1)	ND (1)	ND (0.42)	20	5.6	8.7	4.4	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2.1)	28	43
AOC4-O03	10/26/10	0	N	ND (2)	ND (1) *	220	ND (1)	ND (1)	ND (0.41)	33	9.2	9	7	ND (0.1)	ND (1)	**28**	ND (1)	ND (1)	ND (2)	44	38
	10/26/10	0	FD	ND (2)	ND (1) *	220	ND (1)	ND (1)	ND (0.41)	32	9	9.7	7.1	ND (0.1)	ND (1)	**28**	ND (1)	ND (1)	ND (2)	44	38
AOC4-O04	10/26/10	0	N	ND (2.1)	ND (1.1) *	190	ND (1.1)	ND (1.1)	0.66	**48**	12	12	6	ND (0.11)	ND (1.1)	**36**	ND (1.1)	ND (1.1)	ND (2.1)	52	45
AOC4-O05	10/27/10	0	N	ND (2.1)	2.4	230	ND (1)	ND (1)	ND (0.41)	31	9	12	6.5	ND (0.1)	ND (1)	26	ND (1)	ND (1)	ND (2.1)	46	38
	10/27/10	0	FD	ND (2.1)	2.3	200	ND (1)	ND (1)	ND (0.41)	32	9.2	13	6.6	ND (0.1)	ND (1)	27	ND (1)	ND (1)	ND (2.1)	45	37
AOC4-O06	10/07/10	0	N	ND (2)	ND (1) *	230	ND (1)	ND (1)	ND (0.41)	34	8.1	15	**34**	ND (0.1)	ND (1)	24	ND (1)	ND (1)	ND (2)	35	**59**
AOC4-P03	10/04/10	0	N	ND (2.1)	ND (1) *	160	ND (1)	ND (1)	ND (0.41)	27	6.8	11	4.6	ND (0.1)	ND (1)	18	ND (1)	ND (1)	ND (2.1)	34	30
AOC4-P04	11/19/10	0	N	ND (2.1) J	ND (1) *	140	ND (1)	ND (1) J	**11**	**43**	8.3	10	5.3	ND (0.1)	ND (1) J	25	ND (1) J	ND (1)	ND (2.1) J	37	33

TABLE 3-4a
Sample Results: Metals
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC4-P05	10/27/10	0	N	ND (2.1)	1.8	190	ND (1)	ND (1)	ND (0.41)	25	8.1	13	6.9	ND (0.1)	ND (1)	23	ND (1)	ND (1)	ND (2.1)	39	35
	10/27/10	0	FD	ND (2.1)	ND (1) *	200	ND (1)	ND (1)	ND (0.41)	24	8.1	12	6.9	ND (0.1)	ND (1)	23	ND (1)	ND (1)	ND (2.1)	39	36
AOC4-P06	10/25/10	0	N	ND (2)	ND (2) *	220	ND (1)	ND (1)	ND (0.41)	35	9.5	13	7.5	ND (0.1)	ND (1)	**29**	ND (1)	ND (1)	ND (2)	49	41
AOC4-P07	10/22/10	0	N	ND (2.1) J	ND (1.1) *	240 J	ND (1.1) J	ND (1.1) J	ND (0.43)	**40**	11	13	7.2	ND (0.11)	ND (1.1) J	**32**	ND (1.1) J	ND (1.1)	ND (2.1) J	52	43
AOC4-P08	10/22/10	0	N	ND (2.1)	ND (1) *	200	ND (1)	ND (1)	ND (0.41)	26	8.4	10	7.3	ND (0.1)	ND (1)	24	ND (1)	ND (1)	ND (2.1)	43	39
AOC4-Q04	10/07/10	0	N	ND (2)	ND (1) *	140	ND (1)	ND (1)	**2.7**	**65**	6.9	16	**13**	ND (0.1)	ND (1)	18	ND (1)	ND (1)	ND (2)	28	**77**
AOC4-Q05	10/07/10	0	N	ND (2)	ND (1) *	130	ND (1)	ND (1)	0.42	22	7.2	**19**	**11**	ND (0.099)	ND (1)	14	ND (1)	ND (1)	ND (2)	26	**61 J**
	10/07/10	0	FD	ND (2)	ND (1) *	130	ND (1)	ND (1)	0.56	23	5.8	**19**	**8.6**	ND (0.099)	ND (1)	13	ND (1)	ND (1)	ND (2)	25	48 J
AOC4-Q06	10/25/10	0	N	ND (2)	ND (1) *	280	ND (1)	ND (1)	ND (0.41)	37	11	11	6.6	ND (0.1)	ND (1)	**30**	ND (1)	ND (1)	ND (2)	50	39
AOC4-Q07	10/25/10	0	N	ND (2.1)	ND (1) *	310	ND (1)	ND (1)	ND (0.41)	**46**	12	14	8.2	ND (0.1)	ND (1)	**35**	ND (1)	ND (1)	ND (2.1)	**54**	45
AOC4-Q08	10/22/10	0	N	ND (2.1)	ND (1.1) *	260	ND (1.1)	ND (1.1)	ND (0.43)	37	11	15	6.6	ND (0.11)	ND (1.1)	**32**	ND (1.1)	ND (1.1)	ND (2.1)	**54**	40
AOC4-R05	10/29/10	0	N	ND (2)	3.6	300	ND (1)	ND (1)	ND (0.41)	35	11	13	6	ND (0.1)	ND (1)	**30**	ND (1)	ND (1)	ND (2)	**53**	42
	10/29/10	0	FD	ND (2.1)	3.4	290	ND (1)	ND (1)	ND (0.41)	38	11	14	5.9	ND (0.1)	ND (1)	**30**	ND (1)	ND (1)	ND (2.1)	52	40
AOC4-R06	10/07/10	0	N	ND (2)	ND (1) *	93	ND (1)	ND (1)	ND (0.4)	13	3.9	11	**8.8**	ND (0.1)	ND (1)	9	ND (1)	ND (1)	ND (2)	20	37
AOC4-R07	10/08/10	0	N	ND (2) J	ND (1) *	140 J	ND (1)	ND (1) J	ND (0.4)	31	8.5	11	4.5	ND (0.099)	ND (1) J	27	ND (1)	ND (1)	ND (2) J	36	33
AOC4-tar	02/06/17 Ψ	0	N	ND (2)	5.6	52	ND (1)	ND (1)	ND (0.2)	**75**	4.9	7.5	**19**	ND (0.1)	ND (1)	21	ND (1) J	ND (1)	2.1	9.4	35
BH-69	03/18/11	0 - 0.5	N	ND (2.1)	3.1	140	ND (1)	ND (1)	0.72	**58**	12	**20**	**9.6**	ND (0.1)	ND (1)	**35**	ND (1)	ND (1)	ND (2.1)	50	**73**
	03/18/11	2 - 3	N	ND (2.2)	2.7	89	ND (1.1)	ND (1.1)	ND (0.45)	**49**	11	14	7.4	ND (0.11)	ND (1.1)	**33**	ND (1.1)	ND (1.1)	ND (2.2)	45	**61**
	05/31/11	5 - 6	N	ND (2)	1.7	250	ND (1)	ND (1)	ND (0.41)	**63**	11	**29**	3.9	ND (0.1)	1	**46**	ND (1)	ND (1)	ND (2)	**55**	49
	05/31/11	9 - 10	N	ND (2.1)	2.2	150	ND (1)	ND (1)	ND (0.42)	**57**	12	**25**	4.3	ND (0.1)	ND (1)	**45**	ND (1)	ND (1)	ND (2.1)	**59**	53
	05/31/11	14 - 15	N	ND (2)	1.9	170	ND (1)	ND (1)	ND (0.41)	**45**	10	**42**	4	ND (0.1)	ND (1)	**42**	ND (1)	ND (1)	ND (2)	**58**	48
	05/31/11	19 - 20	N	ND (2)	1.6	280	ND (1)	ND (1)	ND (0.41)	**55**	12	**32**	4.2	ND (0.1)	ND (1)	**43**	ND (1)	ND (1)	ND (2)	**57**	49
	05/31/11	29 - 30	N	ND (2)	1.9	120	ND (1)	ND (1)	ND (0.4)	**57**	11	**46**	3.6	ND (0.1)	ND (1)	**50**	ND (1)	ND (1)	ND (2)	**74**	50
	05/31/11	39 - 40	N	ND (2.1)	2.8	170	ND (1.1)	ND (1.1)	ND (0.43)	**48**	8.4	**21**	4.1	ND (0.11)	ND (1.1)	**35**	ND (1.1)	ND (1.1)	ND (2.1)	**59**	42
PA-OS2	04/06/11	0 - 0.5	FD	ND (2)	5.5	200	ND (1)	ND (1)	ND (0.4) J	35	12	16	4.9	ND (0.1) J	**5.2**	26	ND (1)	ND (1)	ND (2)	46	39
	04/06/11	11.5 - 12	N	ND (2)	3.7	100	ND (1)	ND (1)	ND (0.4) J	24	5.6	10	3.3	ND (0.1) J	**2.9**	19	ND (1)	ND (1)	ND (2)	25	25

TABLE 3-4a

Sample Results: Metals
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ψ	tar sample
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-4b

Sample Results: Contract Laboratory Program Inorganics
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC4-37	02/04/17	0 - 0.5	N	13,000	**100,000**	19,000	10,000	320	1,800 J	140 J	ND (0.209) J
AOC4-42	02/04/17	0 - 0.5	N	6,400	24,000	14,000	5,700	220	1,800 J	750 J	ND (0.207) J
BH-69	03/18/11	2 - 3	N	**17,000**	28,000	23,000	12,000	360	3,800	1,700	---
	05/31/11	5 - 6	N	**20,000**	62,000	**30,000**	**16,000**	**520**	3,400	1,500	ND (0.26)
	05/31/11	9 - 10	N	**20,000**	40,000	**31,000**	**16,000**	**420**	4,000	1,700	ND (0.26)
	05/31/11	14 - 15	N	**19,000**	**71,000**	29,000	**15,000**	**430**	3,400	1,500	ND (0.26)
	05/31/11	19 - 20	N	**20,000**	**67,000**	**31,000**	**15,000**	**440**	3,600	1,500	ND (0.26)
	05/31/11	29 - 30	N	**19,000**	30,000	**32,000**	**16,000**	**410**	**5,500**	1,000	ND (0.25)
	05/31/11	39 - 40	N	16,000	34,000	26,000	**13,000**	320	**4,500**	1,100	ND (0.27)

TABLE 3-4b

Sample Results: Contract Laboratory Program Inorganics
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-4c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
Category 1																						
AOC4-23	12/06/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	7.1	14	5.7	ND (5.1)	9.1	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	12
	12/06/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.8	7.8	17	6.5	5.1	11	ND (5.1)	16	ND (5.1)	5.4	ND (5.1)	ND (5.1)	16	13
AOC4-24	12/06/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	8	160	120	260	28	100	190	ND (5)	430	ND (5)	32	ND (5)	79	390	**170**
	12/06/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	56	1,300	800	1,600	79	460	1,700	ND (5.1)	3,600	ND (5.1)	100	ND (5.1)	850	3,400	**1,100**
AOC4-25	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	19	21	46	14	12	28	ND (5.1)	53	ND (5.1)	13	ND (5.1)	10	53	31
AOC4-26	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.8	ND (5.1)	ND (5.1)	5.4	ND (5.1)	9.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.1	6.4
	11/20/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	02/01/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-27	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	92	95	220	32	69	140	ND (5.1)	460	ND (5.1)	34	ND (5.1)	210	360	**130**
	11/20/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	52	52	94	31	26	62	ND (5.1)	80	ND (5.1)	29	ND (5.1)	13	83	**72**
	02/01/17	5 - 5.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.2	6
AOC4-28	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	52	2,200	1,700	3,400	530	1,100	2,200	ND (5.1)	5,200	ND (5.1)	590	ND (5.1)	710	4,800	**2,300**
AOC4-36	01/05/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	12	12	28	12	6	15	ND (5.3)	27	ND (5.3)	9.8	ND (5.3)	5.6	26	20
	01/05/17	0.9 - 1	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.2	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.9	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.6	6.7
AOC4-37	02/04/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.8 J	7.7	18	5.3	ND (5.3)	9.5	ND (5.3)	21	ND (5.3)	ND (5.3)	ND (5.3)	5.3	20	13
AOC4-38	02/02/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	21	15	32	10	8.6	22	ND (5.3)	44	ND (5.3)	9.6	ND (5.3)	12	39	24
	02/02/17	2 - 2.2	N	ND (5.3)	ND (5.3)	18	ND (5.3)	73	1,200	580	1,300	220	160	940	ND (5.3)	2,500	ND (5.3)	230	ND (5.3)	960	2,000	**860**
AOC4-39	01/05/17	0 - 0.5	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	10	390	240	600	140	140	390	ND (5.7)	820	ND (5.7)	140	ND (5.7)	140	730	**360**
	01/05/17	0 - 0.5	FD	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	7.8	280	210	490	110	100	250	ND (5.6)	580	ND (5.6)	110	ND (5.6)	100	550	**300**
	01/05/17	1.5 - 1.7	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	13	7.8	18	6.3	ND (5.6)	11	ND (5.6)	27	ND (5.6)	5.6	ND (5.6)	5.6	22	14
AOC4-40	02/06/17	0 - 0.5	N	ND (5.2)	ND (5.2)	17	ND (5.2)	200 J	4,600 J	1,900 J	4,400 J	1,000 J	940 J	3,500 J	ND (5.2)	9,400 J	ND (5.2)	1,000 J	ND (5.2)	2,500 J	7,700 J	**2,900**
	02/06/17	0 - 0.5	FD	ND (5.2)	ND (5.2)	7.9	ND (5.2)	94 J	1,200 J	620 J	1,500 J	180 J	360 J	890 J	ND (5.2)	3,000 J	ND (5.2)	200 J	ND (5.2)	1,100 J	2,400 J	**920**
	02/06/17	0.5 - 1	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	78	2,900	1,800	3,500	470	880	2,400	ND (5.5)	4,200	ND (5.5)	520	ND (5.5)	560	4,800	**2,500**
AOC4-41	02/02/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	110 J	56 J	180 J	11 J	69 J	300 J	ND (5.2)	88 J	ND (5.2)	11 J	ND (5.2)	100 J	89 J	**90**
AOC4-42	02/04/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	16 J	19	46	8.3	12	21	ND (5.2)	30	ND (5.2)	8	ND (5.2)	9.7	30	29
	02/04/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	02/04/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	ND (5.1)	5.9
	02/04/17	7 - 7.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC4-L01	05/14/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-L02	05/14/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-L03	05/13/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-M01	09/30/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
AOC4-M02	09/30/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6
AOC4-M03	10/04/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-M04	10/05/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-N01	09/30/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.7	9	19	10	ND (5)	14	ND (5)	29	ND (5)	8.4	ND (5)	7	24	15
AOC4-N02	09/30/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)

TABLE 3-4c

Sample Results: Polycyclic Aromatic Hydrocarbons

AOC 4 – Debris Ravine, Inside Fence Line

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
AOC4-N03	10/04/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
AOC4-N04	10/05/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	10	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.8	6.4
AOC4-N05	10/05/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-O02	10/04/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9	6
AOC4-O03	10/26/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	10/26/10	0	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-O04	10/26/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-O05	10/27/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	10/27/10	0	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-O06	10/07/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-P03	10/04/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.9	6.4
AOC4-P04	11/19/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC4-P05	10/27/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	10/27/10	0	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.6	ND (5.2)	ND (5.2)	ND (5.2)	5.2	5.8	6
AOC4-P06	10/25/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.9
AOC4-P07	10/22/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.2	7.5	16	8.2	5.3	12	ND (5.3)	24	ND (5.3)	6.8	ND (5.3)	12	18	13
AOC4-P08	10/22/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-Q04	10/07/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	22	27	61	29	21	40	ND (5.1)	46	ND (5.1)	24	ND (5.1)	14	40	40
AOC4-Q05	10/07/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10	9	20	8	6	15	ND (5)	22	ND (5)	6.7	ND (5)	6.4	18	15
	10/07/10	0	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	10	21	8.1	6.4	16	ND (5)	28	ND (5)	6.7	ND (5)	13	23	16
AOC4-Q06	10/25/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-Q07	10/25/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.2
AOC4-Q08	10/22/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC4-R05	10/29/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	10/29/10	0	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC4-R06	10/07/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	5.7	19	5.4	5	17	ND (5)	27	ND (5)	ND (5)	ND (5)	8.7	18	11
AOC4-R07	10/08/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	9	21	6	6	18	ND (5)	42	ND (5)	5.7	ND (5)	23	30	16
AOC4-tar	02/06/17 Ψ	0	N	230 J	250 J	43,000	4,800	2,700,000	6,900,000	3,000,000	6,700,000	990,000	2,900,000	6,900,000	210,000 J	27,000,000	37,000	1,000,000	140 J	21,000,000	20,000,000	**4,700,000**
BH-69	03/18/11	0 - 0.5	N	ND (5.2)	6.3 J	ND (5.2)	ND (5.2)	ND (5.2)	12	17	29	17	10	19	ND (5.2)	350	ND (5.2)	15	ND (5.2)	9.4	28	25
	03/18/11	2 - 3	N	ND (5.6)	10 J	ND (5.6)	ND (5.6)	ND (5.6)	7.4	10	20	12	7.4	12	ND (5.6)	20	ND (5.6)	10	5.6	6.3	18	17
	05/31/11	5 - 6	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.5)	ND (5.1)	ND (5.1)	ND (5.9)
	05/31/11	9 - 10	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.4)	ND (5.3)	ND (5.3)	ND (6.1)
	05/31/11	14 - 15	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.3)	ND (5.1)	ND (5.1)	ND (5.9)
	05/31/11	19 - 20	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5)	ND (5.1)	ND (5.1)	ND (5.9)
	05/31/11	29 - 30	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (6.4)	ND (5.1)	ND (5.1)	ND (5.9)
	05/31/11	39 - 40	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6)	ND (5.3)	ND (5.3)	ND (6.1)

TABLE 3-4c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1] :				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
PA-OS2	04/06/11	0 - 0.5	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	6.4	11	ND (5.1)	ND (5.1)	8.1	ND (5.1)	7.1	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	8.4	11
	04/06/11	0 - 0.5	FD	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.9)
	04/06/11	2.5 - 3	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.9)
	04/06/11	5.5 - 6	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5.8)
	04/06/11	9.5 - 10	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.9)
	04/06/11	11.5 - 12	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	5	ND (5)	ND (5)	ND (5)	ND (5)	20	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (5)	10	6

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

Ψ	tar sample
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-4d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Commercial Screening Level [1]:	**1,000,000**	**130,000,000**
			Background [2]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Dibenzofuran**	**Methyl acetate**
Category 1					
AOC4-37	02/04/17	0 - 0.5	N	ND (350)	ND (9.7) J
AOC4-42	02/04/17	0 - 0.5	N	ND (340)	28 J
AOC4-tar	02/06/17 Ψ	0	N	130,000	---
BH-69	03/18/11	0 - 0.5	N	ND (350)	---
	03/18/11	2 - 3	N	ND (370)	ND (4.9)
	05/31/11	5 - 6	N	ND (340)	ND (4.7)
	05/31/11	9 - 10	N	ND (350)	ND (5)
	05/31/11	14 - 15	N	ND (340)	ND (5.5)
	05/31/11	19 - 20	N	ND (340)	ND (4.8)
	05/31/11	29 - 30	N	ND (340)	ND (5.8)
	05/31/11	39 - 40	N	ND (350)	ND (4.6)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than tthe commercial screening level or RWQCB ESL are circled.
Only detected SVOCs and VOCs are presented.

Ψ	tar sample
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency
SVOCs	semivolatile organic compounds
VOCs	volatile organic compounds

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for SVOCs and VOCs.

TABLE 3-4e
Sample Results: Total Petroleum Hydrocarbons
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
BH-69	03/18/11	0 - 0.5	N	83	150
	03/18/11	2 - 3	N	14	33
	05/31/11	5 - 6	N	ND (10)	ND (10)
	05/31/11	9 - 10	N	ND (10)	ND (10)
	05/31/11	14 - 15	N	ND (10)	ND (10)
	05/31/11	19 - 20	N	ND (10)	ND (10)
	05/31/11	29 - 30	N	ND (10)	ND (10)
	05/31/11	39 - 40	N	ND (11)	ND (11)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-4f

Sample Results: General Chemistry Parameters
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry	
				(pH units)	(mg/kg)
			Comercial Regional Screening Levels [1]:	NE	NE
			DTSC-SL [2]:	NE	NE
			Background [3]:	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**	**Total organic carbon**
Category 1					
AOC4-18-OS2	10/17/13	2 - 3	N	9.9	---
	10/17/13	5 - 6	N	8.7	---
BH-69	03/18/11	0 - 0.5	N	9	7,700
	03/18/11	2 - 3	N	9.1	4,900
	05/31/11	5 - 6	N	9.7	18,000
	05/31/11	9 - 10	N	9.6	10,000
	05/31/11	14 - 15	N	9.6	8,300
	05/31/11	19 - 20	N	9.4	6,600
	05/31/11	29 - 30	N	9.7	6,700
	05/31/11	39 - 40	N	9.8	7,900
PA-OS2	04/06/11	0 - 0.5	N	7.8	---
	04/06/11	0 - 0.5	FD	8.3	---
	04/06/11	2.5 - 3	N	7.9	---
	04/06/11	5.5 - 6	N	8	---
	04/06/11	9.5 - 10	N	8.8	---
	04/06/11	11.5 - 12	N	8.1	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-4g
Sample Results: Pesticides
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
		Commercial Screening Level [1]:		9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC4-37	02/04/17	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC4-42	02/04/17	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-4h

Sample Results: Polychlorinated Biphenyls

AOC 4 – Debris Ravine, Inside Fence Line

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1] :	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
Category 1													
AOC4-17-OS1	10/17/13	2 - 3	N	ND (17) J	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	---	---	ND (34)
AOC4-18-OS2	10/17/13	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-17-OS1	10/17/13	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-18-OS2	10/17/13	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-17-OS1	10/17/13	5 - 6	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-17	12/01/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-18	12/01/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-23	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	140	110	---	---	267
	12/06/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	380	210	---	---	607
AOC4-24	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	1,600	3,700	2,300	---	---	7,609
	12/06/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	420	1,200	590	---	---	2,219
AOC4-25	11/20/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	1,600	3,500	2,100	---	---	7,209
AOC4-26	11/20/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	85	ND (17)	---	---	110.5
	11/20/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	140	73	---	---	230
	02/01/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-27	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	4,400	2,700	---	---	7,117
	11/20/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	810	380	---	---	1,207
	02/01/17	5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	230	170	---	---	417
AOC4-28	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	2,900	6,600	4,300	---	---	13,809
AOC4-30	12/02/15	0 - 1	N	17 R	33 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
AOC4-32	12/02/15	0 - 1	N	17 R	33 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
AOC4-36	01/05/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	870	710	---	---	1,597
	01/05/17	0.9 - 1	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18)	95	77	---	---	190
AOC4-37	02/04/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17)	64	44	---	---	125
AOC4-38	02/02/17	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	160	140	---	---	318
	02/02/17	2 - 2.2	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	64.5

TABLE 3-4h

Sample Results: Polychlorinated Biphenyls

AOC 4 – Debris Ravine, Inside Fence Line

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-39	01/05/17	0 - 0.5	N	ND (19)	ND (37)	ND (19)	ND (19) J	ND (19) J	620 J	480 J	---	---	1,119
	01/05/17	0 - 0.5	FD	ND (18)	ND (37)	ND (18)	ND (18) J	ND (18) J	1,600 J	1,300 J	---	---	2,918
	01/05/17	1.5 - 1.7	N	ND (18)	ND (37)	ND (18)	ND (18) J	ND (18) J	92	ND (18)	---	---	119
AOC4-40	02/06/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	2,000	1,100 J	---	---	3,117
	02/06/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	1,300	600 J	---	---	1,917
	02/06/17	0.5 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	1,700	1,500	---	---	3,218
AOC4-41	02/02/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	300	230	---	---	547
AOC4-42	02/04/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	41	41	---	---	99
	02/04/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	02/04/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	02/04/17	7 - 7.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-L01	05/14/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-L02	05/14/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-L03	05/13/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	33	ND (18)	---	---	61
AOC4-M01	09/30/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-M02	09/30/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-M03	10/04/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-M04	10/05/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	44.5
AOC4-N01	09/30/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	160	34	ND (17)	ND (17)	224
AOC4-N02	09/30/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-N03	10/04/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	20	ND (18)	ND (18)	ND (18)	47
AOC4-N04	10/05/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-N05	10/05/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	33	ND (17)	ND (17)	ND (17)	58.5
AOC4-O02	10/04/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-O03	10/26/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/26/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-O04	10/26/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	110	22	ND (17)	ND (17)	149

TABLE 3-4h

Sample Results: Polychlorinated Biphenyls

AOC 4 – Debris Ravine, Inside Fence Line

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
AOC4-O05	10/27/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/27/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-O06	10/07/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P03	10/04/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	24	ND (17)	ND (17)	ND (17)	49.5
AOC4-P04	11/19/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P05	10/27/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/27/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P06	10/25/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P07	10/22/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-P08	10/22/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-Q04	10/07/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	400	120	ND (17)	ND (17)	727
AOC4-Q05	10/07/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	290	88	ND (17)	ND (17)	405
	10/07/10	0	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	380	100	ND (17)	ND (17)	627
AOC4-Q06	10/25/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-Q07	10/25/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-Q08	10/22/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-R05	10/29/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/29/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-R06	10/07/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	110	34	ND (17)	ND (17)	161
AOC4-R07	10/08/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	51	17	ND (17)	ND (17)	85
AOC4-tar	02/06/17 Ψ	0	N	ND (34)	ND (67)	ND (34)	ND (34)	ND (34)	ND (34)	ND (34)	---	---	ND (68)

TABLE 3-4h
Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Commercial Screening Level[1]:				**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
BH-69	03/18/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	67	ND (17)	ND (17)	ND (17)	92.5
	03/18/11	2 - 3	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	51	ND (18)	ND (18)	ND (18)	78
	05/31/11	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	05/31/11	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	05/31/11	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	05/31/11	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	05/31/11	29 - 30	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	05/31/11	39 - 40	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
PA-OS2	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	21	ND (17)	---	---	46.5
	04/06/11	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	18	ND (17)	---	---	43.5
	04/06/11	5.5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	9.5 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	11.5 - 12	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	48	ND (17)	---	---	73.5

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

ψ	tar sample
*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
N	primary sample

TABLE 3-4h

Sample Results: Polychlorinated Biphenyls
AOC 4 – Debris Ravine, Outside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-4i

Sample Results: Dioxins and Furans

AOC 4 – Debris Ravine, Inside Fence Line

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																		
		Commercial Screening Level [1]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC4-32-OS5	10/17/13	2 - 3	N	ND (0.27)	ND (0.25)	ND (0.4)	ND (0.27)	ND (0.069)	ND (0.25)	ND (0.061)	ND (0.16)	ND (0.095)	ND (0.46)	ND (0.067)	ND (0.074)	ND (0.07)	ND (0.12)	ND (0.061)	ND (0.8)	ND (0.39)	ND (0.36)
AOC4-17-OS1	10/17/13	2 - 3	N	ND (0.86)	ND (0.096)	ND (0.14)	ND (0.17)	ND (0.083)	ND (0.17)	ND (0.078)	ND (0.16)	ND (0.11)	ND (0.5)	ND (0.08)	ND (0.087)	ND (0.087)	ND (0.25)	ND (0.051)	ND (9)	ND (0.41)	ND (0.44)
AOC4-18-OS2	10/17/13	2 - 3	N	ND (5.9)	ND (0.13)	ND (0.19)	ND (0.17)	ND (0.13)	ND (0.16)	ND (0.21)	ND (0.16)	ND (0.17)	ND (0.4)	ND (0.12)	ND (0.14)	ND (0.14)	ND (0.19)	ND (0.14)	50	ND (1.6)	0.43
AOC4-31-OS4	10/17/13	2 - 3	N	ND (0.69)	ND (0.16)	ND (0.23)	ND (0.2)	ND (0.12)	ND (0.19)	ND (0.11)	ND (0.19)	ND (0.16)	ND (0.13)	ND (0.12)	ND (0.13)	ND (0.13)	ND (0.22)	ND (0.052)	17 J	ND (0.27)	0.26
AOC4-30-OS3	10/17/13	2 - 3	N	ND (0.55)	ND (0.15)	ND (0.22)	ND (0.17)	ND (0.096)	ND (0.16)	ND (0.089)	ND (0.16)	ND (0.12)	ND (0.19)	ND (0.094)	ND (0.1)	ND (0.072)	ND (0.17)	ND (0.047)	ND (0.53)	ND (0.39)	ND (0.24)
AOC4-17-OS1	10/17/13	5 - 6	N	ND (0.85)	ND (0.23)	ND (0.33)	ND (0.21)	ND (0.15)	ND (0.21)	ND (0.14)	ND (0.2)	ND (0.2)	ND (0.31)	ND (0.066)	ND (0.11)	ND (0.11)	ND (0.26)	ND (0.076)	7 J	ND (0.32)	0.38
AOC4-18-OS2	10/17/13	5 - 6	N	ND (2.8)	ND (0.6)	ND (0.18)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.1)	ND (0.11)	ND (0.083)	ND (0.12)	ND (0.11)	ND (0.54)	ND (0.11)	ND (0.19)	ND (0.11)	21 J	ND (0.26)	0.26
AOC4-30-OS3	10/17/13	5 - 6	N	ND (0.25)	ND (0.2)	ND (0.29)	ND (0.15)	ND (0.076)	ND (0.14)	ND (0.07)	ND (0.14)	ND (0.12)	ND (0.1)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.14)	ND (0.054)	ND (0.86)	ND (0.23)	ND (0.19)
AOC4-31-OS4	10/17/13	5 - 6	N	2.7 J	ND (0.73)	ND (0.56)	ND (0.45)	ND (0.13)	ND (0.42)	ND (0.12)	ND (0.44)	ND (0.18)	ND (0.17)	ND (0.1)	ND (0.14)	ND (0.097)	ND (0.11)	ND (0.07)	16 J	ND (1.3)	0.29
AOC4-32-OS5	10/17/13	5 - 6	N	21	ND (0.56)	ND (0.91)	ND (0.61)	ND (0.55)	ND (0.45)	ND (0.49)	ND (0.61)	ND (0.76)	ND (1)	ND (0.14)	ND (0.59)	ND (0.16)	ND (0.13)	ND (0.26)	140	2.9 J	1.1
AOC4-17-OS1	10/17/13	5 - 6	FD	ND (0.98)	ND (0.12)	ND (0.17)	ND (0.12)	ND (0.072)	ND (0.11)	ND (0.091)	ND (0.11)	ND (0.093)	ND (0.12)	ND (0.067)	ND (0.075)	ND (0.072)	ND (0.18)	ND (0.058)	ND (4.7)	ND (0.39)	ND (0.21)
AOC4-17	12/01/15	2 - 3	N	0.94 J	ND (0.18)	ND (0.067)	ND (0.05)	ND (0.17)	ND (0.049)	ND (0.15)	ND (0.078)	ND (0.19)	ND (0.096)	ND (0.094)	ND (0.48)	ND (0.1)	ND (0.081)	ND (0.06)	ND (5.8)	0.54 J	0.18
AOC4-18	12/01/15	2 - 3	N	140	13	ND (0.87)	1.4 J	ND (0.54)	4.8 J	1.2 J	2.6 J	ND (0.63)	ND (0.37)	ND (0.45)	ND (15)	ND (0.77)	ND (0.073)	0.58 J	1,100	21 J	4.1
AOC4-23	12/06/15	0 - 1	N	88	12 J	ND (1.8)	ND (1.8)	ND (2.8)	3.5 J	ND (2.3)	ND (2.2)	1 J	1.2 J	2.1 J	ND (7.1)	ND (2.5)	ND (0.43)	ND (1.8)	820	20 J	4.5
	12/06/15	2 - 3	N	54	12 J	ND (2)	ND (1.4)	ND (4.8)	2.3 J	ND (6.2)	1.5 J	1.3 J	ND (0.74)	4.5 J	1.4 J	5.8 J	ND (0.49)	3.4 J	510	16 J	4.9
AOC4-24	12/06/15	0 - 1	N	4,600	490	41	30	52	99	41	55	7 J	ND (6.8)	30	ND (460)	43	ND (1.4)	30	45,000	1,400	**140**
	12/06/15	2 - 3	N	1,500	150	14	10 J	17	33	16	18	3.2 J	5.1 J	13	ND (180)	12 J	ND (0.62)	8.4	13,000	430	**50**
AOC4-25	11/20/15	0 - 1	N	270	81	12 J	4.4 J	17	10 J	9.2 J	7.2 J	ND (1.7)	ND (38) *	ND (6.6)	ND (29)	25	ND (1.5)	14	2,000	140	**39**
AOC4-26	11/20/15	0 - 1	N	62	14	ND (1.3)	ND (0.67)	ND (2)	2.5 J	1.8 J	ND (1.6)	ND (0.51)	ND (1.3)	ND (0.38)	ND (5)	ND (2.3)	ND (0.68)	2.3 J	450	18 J	3.4
	11/20/15	2 - 3	N	ND (13)	3.2 J	ND (0.34)	ND (0.42)	0.6 J	ND (0.35)	ND (0.46)	ND (0.33)	ND (0.36)	ND (3.2)	ND (0.35)	ND (1.2)	ND (0.9)	ND (0.25)	0.67 J	87	5.2 J	2.3
	02/01/17	5 - 6	N	ND (3.6)	ND (0.5)	ND (0.16)	ND (0.12)	ND (0.12)	ND (0.28)	ND (0.44)	ND (0.12)	ND (0.14)	ND (0.095)	1.1 J	ND (0.71)	ND (0.14)	ND (0.05)	ND (0.075)	ND (31)	ND (0.86)	0.25
AOC4-27	11/20/15	0 - 1	N	810	180	21	7.7 J	45	24	39	12 J	ND (4.4)	ND (64) *	24	ND (16)	100	ND (3.1)	38	6,500	310	**94**
	11/20/15	2 - 3	N	150	45	ND (5.1)	ND (0.88)	9.4 J	4.5 J	ND (7.4)	ND (0.83)	ND (0.98)	ND (58) *	ND (4.3)	ND (18)	19	ND (1.6)	10	1,300	69	**42**
	02/01/17	5 - 5.5	N	20	2.9 J	ND (0.32)	ND (0.31)	ND (0.89)	ND (0.69)	ND (1.3)	ND (0.21)	ND (0.19)	ND (0.22)	1.8 J	ND (1.8)	ND (1.1)	ND (0.036)	ND (0.42)	210	ND (4)	0.93
AOC4-28	11/20/15	0 - 1	N	1,400	260	33	19	52	45	ND (30)	30	ND (11)	ND (7.1)	ND (3.2)	25	37	ND (3.5)	ND (13)	9,400	370	**56**
AOC4-29	12/02/15	0 - 1	N	26	ND (1.8)	ND (0.17)	ND (0.27)	ND (0.2)	0.95 J	ND (0.19)	0.84 J	ND (0.23)	ND (0.11)	ND (0.12)	ND (1.1)	ND (0.13)	ND (0.058)	1 J	210	3.7 J	0.82
	12/03/15	2 - 3	N	1.6 J	ND (0.22)	ND (0.12)	ND (0.057)	ND (0.065)	ND (0.14)	ND (0.06)	ND (0.054)	ND (0.076)	ND (0.075)	0.26 J	ND (0.2)	ND (0.13)	ND (0.11)	ND (0.21)	ND (8.3)	ND (0.33)	0.18
	12/03/15	5 - 6	N	ND (1.7)	ND (0.21)	ND (0.083)	ND (0.029)	ND (0.086)	ND (0.029)	ND (0.079)	ND (0.099)	ND (0.1)	ND (0.099)	ND (0.045)	ND (0.062)	ND (0.045)	ND (0.068)	ND (0.075)	ND (12)	ND (0.3)	ND (0.13)
AOC4-30	12/02/15	0 - 1	N	1,200	100	8.1 J	14	11 J	38	9.6 J	23	ND (0.73)	ND (5.4)	4.3 J	ND (71)	13	ND (0.55)	7.7	8,200	150	**37**
	12/03/15	2 - 3	N	3.6 J	ND (0.36)	ND (0.12)	ND (0.12)	ND (0.096)	ND (0.061)	ND (0.089)	ND (0.057)	ND (0.11)	ND (0.062)	ND (0.076)	ND (0.28)	ND (0.082)	ND (0.045)	ND (0.082)	ND (20)	0.88 J	0.15
	12/03/15	5 - 6	N	2.4 J	ND (0.28)	ND (0.1)	ND (0.066)	ND (0.062)	0.25 J	ND (0.057)	ND (0.13)	ND (0.072)	ND (0.077)	ND (0.055)	ND (0.064)	ND (0.059)	ND (0.058)	ND (0.22)	ND (15)	ND (0.35)	0.16
AOC4-31	12/02/15	0 - 1	N	110	10 J	ND (0.92)	ND (0.62)	1.2 J	2.9 J	ND (0.56)	ND (1.2)	ND (0.33)	ND (0.5)	ND (0.36)	ND (14)	ND (0.91)	ND (0.076)	0.85 J	970	23 J	3.3
	12/02/15	2 - 3	N	140	12 J	ND (1.1)	ND (0.83)	ND (1.3)	4.5 J	ND (0.62)	2 J	ND (0.3)	ND (0.46)	1.6 J	ND (21)	ND (1.4)	ND (0.069)	ND (0.89)	1,100	29	4.3
	12/02/15	5 - 6	N	6.4 J	ND (0.64)	ND (0.069)	0.23 J	ND (0.06)	ND (0.059)	ND (0.056)	ND (0.099)	ND (0.13)	ND (0.11)	ND (0.1)	ND (1.2)	ND (0.074)	ND (0.054)	ND (0.073)	ND (55)	1.5 J	0.28

TABLE 3-4i
Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
AOC4-32	12/02/15	0 - 1	N	2,900	280	ND (8.5)	14	ND (1.8)	79	9.3 J	27	6.4 J	ND (7.6)	ND (6.2)	ND (640)	ND (6.7)	0.9 J	3.4 J	26,000	750	**92**
	12/02/15	2 - 3	N	86	6.4 J	ND (0.82)	ND (0.58)	0.86 J	2.5 J	ND (0.32)	ND (1.1)	ND (0.38)	ND (0.26)	ND (0.28)	ND (16)	0.47 J	ND (0.12)	ND (0.47)	670	20 J	2.7
	12/02/15	5 - 6	N	41	3.6 J	ND (0.2)	ND (0.4)	ND (0.22)	ND (1.2)	ND (0.2)	ND (0.53)	ND (0.25)	ND (0.2)	ND (0.17)	ND (8.1)	ND (0.29)	ND (0.083)	ND (0.22)	300	8.3 J	1.3
AOC4-36	01/05/17	0 - 0.5	N	340	39	6.4 J	6 J	5.3 J	12 J	6.8 J	ND (8.5)	ND (0.43)	ND (7.4)	56	ND (34)	5.6 J	ND (0.8)	13	3,000	90	**19**
	01/05/17	0.9 - 1	N	53 J	6.9 J	ND (1.6)	ND (0.67)	ND (0.76)	ND (2)	11 J	ND (2.3)	ND (0.87)	ND (3.2)	76	ND (2.3)	ND (1.7)	ND (0.38)	ND (0.5)	390	ND (12)	**6.6**
AOC4-37	02/04/17	0 - 0.5	N	43	3.7 J	ND (0.35)	ND (0.58)	ND (0.45)	1.9 J	4.9 J	1.3 J	ND (0.52)	ND (0.5)	ND (0.83)	ND (3.3)	ND (0.17)	ND (0.24)	ND (0.42)	330	5.6 J	2.1
AOC4-38	02/02/17	0 - 0.5	N	930	100	8.6 J	5.2 J	3.7 J	22	ND (2.4)	9.6 J	1.3 J	ND (2.9)	ND (1.3)	ND (200)	ND (1.9)	ND (0.08)	1.3 J	9,700	270	**30**
	02/02/17	2 - 2.2	N	560	92	6.7 J	1.7 J	3.6 J	15	ND (2.6)	3.8 J	ND (0.57)	ND (0.82)	1.8 J	ND (140)	ND (0.95)	ND (0.11)	ND (0.21)	6,300	230	**19**
AOC4-39	01/05/17	0 - 0.5	N	420 J	76	10 J	ND (33)	14	ND (28)	14	ND (29)	ND (3.1)	ND (900) *	52	ND (64)	ND (3)	ND (0.4)	ND (3.4)	2,800 J	120 J	**470**
	01/05/17	0 - 0.5	FD	890 J	79	ND (9.5)	13	14	24	ND (17)	19	ND (5.6)	ND (630) *	ND (2.5)	ND (80)	13	ND (0.97)	ND (7.2)	8,400 J	230 J	**340**
	01/05/17	1.5 - 1.7	N	27	ND (2.8)	ND (1.3)	ND (0.63)	ND (0.52)	ND (0.9)	2.2 J	ND (0.32)	ND (0.59)	ND (1.7)	ND (1.2)	ND (0.52)	ND (1.2)	ND (0.21)	ND (2)	ND (130)	2.9 J	2
AOC4-40	02/06/17	0 - 0.5	N	360	140 J	22	5.2 J	32	11 J	21	9.1 J	6.8 J	ND (2.5)	26	ND (42)	37	ND (0.67)	38	3,100	240 J	**34**
	02/06/17	0 - 0.5	FD	390	86 J	10 J	6 J	35	13	29	10 J	3.8 J	ND (3.5)	26	ND (37)	43	ND (0.15)	45	3,000	110 J	**37**
	02/06/17	0.5 - 1	N	210	39	ND (4.2)	2.9 J	10 J	7 J	7.3 J	5.4 J	ND (1.3)	ND (1.8)	8.1 J	ND (22)	20	ND (0.15)	16	1,700	57	**16**
AOC4-41	02/02/17	0 - 0.5	N	1,400	ND (230)	ND (12)	ND (9.4)	ND (9.7)	ND (9.4)	ND (9.2)	ND (9.2)	ND (11)	ND (52) *	ND (7.9)	ND (9.9)	ND (8.2)	ND (6.4)	ND (5.1)	13,000	180	**53**
AOC4-42	02/04/17	0 - 0.5	N	710	50	ND (3.7)	ND (4.5)	4.2 J	18	ND (2.8)	11 J	ND (1.5)	ND (3.7)	ND (1.2)	ND (69)	ND (1.9)	ND (0.18)	1.5 J	6,400	96	**19**
	02/04/17	2 - 3	N	61	5.2 J	ND (0.37)	ND (0.27)	ND (0.29)	ND (1.7)	ND (0.28)	ND (0.86)	ND (0.34)	ND (0.16)	ND (0.22)	ND (6.7)	ND (0.23)	ND (0.17)	ND (0.36)	560	ND (9.1)	1.6
	02/04/17	5 - 6	N	4.1 J	ND (0.076)	ND (0.092)	ND (0.096)	ND (0.068)	ND (0.096)	ND (0.065)	ND (0.094)	ND (0.031)	ND (0.072)	ND (0.054)	ND (0.61)	ND (0.057)	ND (0.076)	ND (0.071)	35	1.1 J	0.19
	02/04/17	7 - 7.5	N	14	ND (1.1)	ND (0.13)	ND (0.12)	ND (0.15)	ND (0.5)	ND (0.14)	0.38 J	ND (0.17)	ND (0.11)	ND (0.083)	ND (1.7)	ND (0.086)	ND (0.071)	ND (0.067)	120	2.2 J	0.47
AOC4-L01	05/14/10	0	N	44	ND (5.6)	ND (2.7)	1.3 J	ND (1.1)	ND (2.1)	ND (1.3)	ND (1.9)	ND (2.6)	ND (0.16)	1 J	1 J	1.2 J	1.3 J	1.7 J	430	15 J	3.2
AOC4-L02	05/14/10	0	N	25	4.4 J	2.9 J	1.3 J	1.2 J	ND (2)	ND (0.87)	2.1 J	ND (3.2)	ND (0.17)	1.2 J	1.4 J	1.3 J	1.4 J	ND (1.6)	210	10 J	3.3
AOC4-L03	05/13/10	0	N	81	8 J	ND (1.4)	1.6 J	1.4 J	3.6 J	ND (0.99)	3.5 J	ND (1.1)	ND (0.44)	1 J	ND (0.6)	ND (0.79)	ND (0.18)	ND (1)	780	17 J	2.8
AOC4-M01	09/30/10	0	N	15	2.7 J	ND (0.15)	ND (0.18)	ND (0.32)	ND (0.73)	ND (0.38)	ND (0.17)	ND (0.19)	ND (0.17)	ND (0.22)	ND (3.5)	ND (0.085)	ND (0.11)	ND (0.38)	140	9.8 J	0.67
AOC4-M02	09/30/10	0	N	95	ND (1.2)	ND (1.8)	ND (0.58)	ND (0.57)	ND (0.6)	ND (0.51)	ND (0.57)	ND (0.68)	ND (0.39)	ND (0.4)	ND (0.6)	ND (0.38)	ND (0.26)	ND (0.39)	960	ND (1.9)	1.9
AOC4-M03	10/04/10	0	N	12 J	ND (1)	ND (0.32)	ND (0.37)	ND (0.18)	ND (0.38)	ND (0.16)	ND (0.36)	ND (0.21)	ND (0.31)	ND (0.17)	ND (1.3)	ND (0.17)	ND (0.095)	ND (0.26)	120	ND (2.8)	0.55
AOC4-M04	10/05/10	0	N	45	4.1 J	0.6 J	ND (0.47)	0.82 J	2.8 J	ND (0.29)	1.6 J	ND (0.39)	ND (0.49)	ND (0.38)	ND (4.3)	ND (0.36)	ND (0.17)	ND (0.38)	450	ND (6.4)	1.8
AOC4-N01	09/30/10	0	N	510	37	3.1 J	5.1 J	ND (3.3)	17	2.6 J	10 J	ND (0.73)	ND (0.72)	ND (0.56)	ND (37)	1.5 J	ND (0.23)	ND (1.3)	4,500	65	**13**
AOC4-N02	09/30/10	0	N	5.3 J	ND (0.14)	ND (0.23)	ND (0.23)	ND (0.15)	ND (0.23)	ND (0.14)	ND (0.22)	ND (0.18)	ND (0.24)	ND (0.089)	ND (1.3)	ND (0.086)	ND (0.18)	ND (0.12)	50	ND (1.3)	0.42
AOC4-N03	10/04/10	0	N	140	ND (9.1)	ND (1.3)	ND (0.78)	ND (1.2)	5.1 J	ND (0.58)	ND (1.7)	ND (0.34)	ND (0.43)	ND (0.35)	ND (23)	ND (0.58)	ND (0.2)	ND (0.55)	1,400	31	4.2
AOC4-N04	10/05/10	0	N	230	15	ND (0.58)	ND (0.64)	ND (1.8)	8.3 J	ND (0.89)	ND (0.62)	ND (0.59)	ND (0.48)	ND (0.28)	ND (0.52)	ND (0.78)	ND (0.39)	ND (0.44)	2,700	43	4.9
AOC4-N05	10/05/10	0	N	140	15	ND (0.32)	ND (1)	ND (1.4)	4.6 J	ND (0.47)	2.1 J	ND (0.48)	ND (0.5)	ND (0.32)	ND (0.37)	ND (0.31)	ND (0.42)	0.54 J	1,700	40	3.5
AOC4-O02	10/04/10	0	N	67	7.1 J	ND (0.95)	ND (1)	ND (0.68)	ND (2.4)	ND (0.6)	ND (1.1)	ND (0.81)	ND (0.39)	ND (0.46)	ND (6.6)	ND (0.45)	ND (0.33)	ND (0.34)	630	11 J	2
AOC4-O03	10/26/10	0	N	38	5.3 J	ND (1.2)	ND (2.4)	ND (1.7)	ND (2.8)	ND (1.6)	ND (2.8)	ND (2)	ND (1.1)	ND (0.58)	ND (1.2)	ND (1.1)	ND (0.82)	ND (0.72)	370	ND (11)	2.4
	10/26/10	0	FD	33	ND (3.5)	2 J	ND (1.6)	ND (1.7)	ND (2.2)	ND (1.3)	ND (1.6)	ND (1.3)	ND (0.67)	ND (0.63)	ND (0.66)	ND (0.94)	ND (0.59)	ND (0.36)	330	ND (9.9)	1.8
AOC4-O04	10/26/10	0	N	480	49	ND (4.2)	ND (5.1)	4.2 J	16	ND (2.9)	9.7 J	ND (0.99)	ND (0.62)	ND (0.63)	ND (2.1)	ND (2.1)	0.77 J	1.4 J	4,200	100	**12**

TABLE 3-4i
Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
		Commercial Screening Level [1]:		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
		Background [2]:		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
AOC4-O05	10/27/10	0	N	5 J	2.1 J	ND (1.1)	ND (0.34)	ND (0.63)	ND (0.58)	ND (0.34)	ND (0.61)	1.2 J	ND (0.29)	ND (0.41)	ND (0.28)	ND (0.12)	ND (0.23)	ND (0.65)	35	2.5 J	0.66
	10/27/10	0	FD	4.3 J	1.9 J	ND (1.1)	ND (0.43)	ND (0.36)	0.63 J	ND (0.32)	ND (0.95)	ND (0.61)	ND (0.36)	ND (0.41)	ND (0.1)	ND (0.31)	ND (0.14)	ND (0.51)	35	2.5 J	0.61
AOC4-O06	10/07/10	0	N	680	21	2.6 J	6.4 J	2.7 J	17	1.8 J	11 J	2.2 J	ND (0.23)	ND (0.35)	ND (37)	ND (0.34)	0.17 J	0.41 J	5,900	41	**15**
AOC4-P03	10/04/10	0	N	170	11 J	ND (0.73)	ND (1)	ND (1.4)	5 J	1.6 J	2.8 J	ND (0.37)	ND (0.44)	ND (0.46)	ND (14)	ND (0.44)	ND (0.22)	ND (0.48)	1,900	27	4.6
AOC4-P04	11/19/10	0	N	4.4 J	ND (2.5)	1.5 J	0.82 J	ND (0.87)	ND (1.1)	ND (1.1)	ND (1.4)	1.3 J	0.91 J	1.2 J	ND (0.75)	ND (0.5)	ND (0.36)	ND (0.95)	ND (23)	3.2 J	1.8
AOC4-P05	10/27/10	0	N	32	ND (0.092)	0.93 J	0.93 J	ND (0.87)	1.5 J	0.74 J	ND (1.4)	0.92 J	ND (0.24)	ND (0.52)	ND (0.42)	ND (0.26)	ND (0.16)	ND (0.56)	270	6.5 J	1.2
	10/27/10	0	FD	43	ND (0.21)	ND (2.2)	ND (1)	ND (1.4)	ND (1.7)	1.1 J	ND (1.4)	1.7 J	ND (0.41)	ND (0.81)	0.69 J	ND (0.43)	ND (0.091)	ND (0.91)	320	9.2 J	1.5
AOC4-P06	10/25/10	0	N	25	3 J	ND (0.55)	ND (1.9)	ND (1.1)	ND (1.4)	ND (1.2)	ND (1.2)	ND (1.4)	1.7 J	1.6 J	ND (0.65)	ND (1)	ND (0.45)	0.53 J	190	5.8 J	3
AOC4-P07	10/22/10	0	N	390	ND (19)	4.7 J	62	ND (0.98)	17	ND (5.2)	ND (6.9)	ND (1.5)	5.6 J	ND (0.97)	ND (93)	ND (1.7)	ND (3.9)	ND (1.1)	3,900	57	**26**
AOC4-P08	10/22/10	0	N	37	3.6 J	ND (1.3)	ND (1.5)	ND (0.66)	ND (0.98)	ND (0.58)	ND (1.1)	ND (1)	ND (1.3)	ND (1.1)	ND (0.71)	1.3 J	ND (0.53)	0.7 J	560	ND (2.5)	2.3
AOC4-Q04	10/07/10	0	N	2,000	140	12 J	25	14	64	9.3 J	42	ND (0.35)	ND (0.48)	4.5 J	ND (140)	11 J	ND (0.6)	8.9	15,000	280	**53**
AOC4-Q05	10/07/10	0	N	2,400	150	14	24	15	66	8.1 J	36	ND (0.43)	ND (0.56)	3.4 J	ND (210)	7.8 J	ND (0.59)	3.9 J	12,000	380	**58**
	10/07/10	0	FD	2,300	150	ND (12)	21	15	66	ND (6.8)	36	ND (0.27)	ND (0.53)	3.9 J	ND (200)	ND (6.3)	ND (0.82)	4 J	14,000	370	**55**
AOC4-Q06	10/25/10	0	N	15	2.6 J	ND (2.1)	ND (1.1)	1.5 J	ND (2)	ND (2)	ND (2.2)	ND (0.73)	ND (1)	0.94 J	2 J	1.3 J	0.71 J	0.67 J	89	ND (0.77)	2.7
AOC4-Q07	10/25/10	0	N	970	36	ND (3.5)	12 J	5.1 J	34	ND (3.6)	19	ND (0.94)	ND (3.4)	ND (2)	ND (53)	ND (1.7)	ND (0.96)	1.7 J	5,700	ND (53)	**24**
AOC4-Q08	10/22/10	0	N	69	6.5 J	ND (1.8)	ND (1.7)	ND (1.8)	ND (4.1)	ND (1.3)	ND (1.8)	ND (1.5)	ND (0.3)	ND (1.8)	ND (1.6)	ND (1.2)	ND (1.1)	0.95 J	760	ND (13)	2.7
AOC4-R05	10/29/10	0	N	20	ND (2.6)	ND (1.8)	1.5 J	ND (3.6)	ND (2.5)	ND (1.9)	2.9 J	ND (3)	ND (2.8)	ND (6.5)	1.3 J	ND (3.3)	ND (1.6)	ND (2)	160	9.8 J	4.3
	10/29/10	0	FD	31	13	ND (7.2)	3.1 J	ND (0.26)	4.8 J	3.6 J	ND (6.8)	7.2 J	2.5 J	3.3 J	2.3 J	ND (1.1)	ND (0.25)	ND (0.68)	180	27	**5.9**
AOC4-R06	10/07/10	0	N	710 J	41	4.2 J	13	5.3 J	24	4 J	19 J	1.1 J	ND (0.43)	1.5 J	ND (29)	2.3 J	ND (0.79)	2.1 J	5,200	80	**19**
AOC4-R07	10/08/10	0	N	1,600	67	5.2 J	24	6.8 J	55	ND (6.9)	39	2.3 J	ND (0.46)	3 J	ND (44)	ND (2.7)	1.2 J	2 J	11,000	90	**37**
AOC4-tar	02/06/17	0	N	130 SJ	15 SJ	8.2 R	6.7 R	8.7 SJ	11 R	8.9 R	15 R	9.6 R	12 R	15 R	14 R	1.8 R	3.2 R	2.2 R	6,300 SJ	200 R	**16 SJR**
BH-69	03/18/11	0 - 0.5	N	1,900	ND (300)	12 J	16	12 J	55	ND (17)	27	2.7 J	6.6 J	ND (0.12)	12 J	3.8 J	ND (0.78)	2.4 J	16,000	270	**47**
	03/18/11	2 - 3	N	930	ND (140)	5.2 J	8.2 J	6.8 J	28	ND (9.4)	14	1.9 J	3.9 J	ND (0.053)	6.7 J	2.8 J	ND (0.34)	ND (1.4)	8,200	94	**25**
	05/31/11	5 - 6	N	1.5 J	1.3 J	ND (0.64)	ND (0.45)	ND (0.37)	ND (0.61)	ND (0.34)	ND (0.58)	0.88 J	ND (0.16)	ND (0.36)	0.59 J	ND (0.11)	ND (0.13)	ND (0.59)	ND (6.3) J	4.4 J	0.49

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ψ	tar sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level

TABLE 3-4i
Sample Results: Dioxins and Furans
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-4j

Constituent Concentrations in Soil Compared to Screening Values
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences [4]	(BK)	# of Exceedences [5]	(ESL)	# of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	56	79 / 84 (94%)	470	29	(5.58)	NA	(NA)	1	(220)
Metals										
Antimony	mg/kg	57	0 / 91 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	57	62 / 91 (68%)	11	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	57	91 / 91 (100%)	1,100	4	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	57	0 / 91 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	57	6 / 91 (6.6%)	2.1	5	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	51	11 / 79 (14%)	11	2	(0.83)	NA	(NA)	1	(6.3)
Chromium, total	mg/kg	57	91 / 91 (100%)	120	32	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	57	91 / 91 (100%)	28	8	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	57	91 / 91 (100%)	270	33	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	57	91 / 91 (100%)	34	11	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	57	0 / 91 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	57	3 / 91 (3.3%)	5.2	2	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	57	91 / 91 (100%)	69	33	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	57	1 / 91 (1.1%)	1.1	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	57	0 / 91 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	57	0 / 91 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	57	91 / 91 (100%)	82	18	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	57	91 / 91 (100%)	440	10	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	3	9 / 9 (100%)	20,000	6	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	3	9 / 9 (100%)	100,000	3	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	3	9 / 9 (100%)	32,000	4	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	3	9 / 9 (100%)	16,000	6	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	3	9 / 9 (100%)	520	5	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	3	9 / 9 (100%)	5,500	2	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-4j

Constituent Concentrations in Soil Compared to Screening Values
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	3	9 / 9 (100%)	1,700	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	3	0 / 8 (0%)	ND (0.27)	NA	(NE)	NA	(NA)	0	(150)
Volatile Organic Compounds										
Methyl acetate	µg/kg	3	1 / 9 (11%)	28	NA	(NE)	NA	(NA)	0	(130,000,000)
Polycyclic Aromatic Hydrocarbons										
2-Methyl naphthalene	µg/kg	46	2 / 70 (2.9%)	10	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	46	2 / 70 (2.9%)	18	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	46	7 / 70 (10%)	94	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	46	28 / 70 (40%)	4,600	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	46	27 / 70 (39%)	1,800	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	46	32 / 70 (46%)	4,400	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	46	26 / 70 (37%)	530	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	46	22 / 70 (31%)	1,100	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	46	29 / 70 (41%)	2,400	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	46	37 / 70 (53%)	9,400	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	46	23 / 70 (33%)	590	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	46	1 / 70 (1.4%)	5.6	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	46	26 / 70 (37%)	2,500	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	46	35 / 70 (50%)	7,700	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	46	39 / 70 (56%)	2,900	10	(55)	NA	(NA)	3	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	52	2 / 78 (2.6%)	17	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	52	2 / 78 (2.6%)	33	NA	(NE)	NA	(NA)	0	(830)
Aroclor 1232	µg/kg	52	2 / 78 (2.6%)	17	NA	(NE)	NA	(NA)	0	(720)
Aroclor 1242	µg/kg	52	2 / 78 (2.6%)	17	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1248	µg/kg	52	6 / 78 (7.7%)	2,900	NA	(NE)	NA	(NA)	3	(950)
Aroclor 1254	µg/kg	52	41 / 78 (53%)	6,600	NA	(NE)	NA	(NA)	7	(970)

TABLE 3-4j

Constituent Concentrations in Soil Compared to Screening Values
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Polychlorinated biphenyls										
Aroclor 1260	µg/kg	52	27 / 78 (35%)	4,300	NA	(NE)	NA	(NA)	5	(990)
Total PCBs	µg/kg	52	43 / 78 (55%)	13,809	NA	(NE)	NA	(NA)	10	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	1	2 / 8 (25%)	83	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	1	2 / 8 (25%)	150	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	1	0 / 8 (0%)	ND (1.1)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-4j

Constituent Concentrations in Soil Compared to Screening Values
AOC 4 – Debris Ravine, Inside Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-5a

Sample Results: Metals
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC9-1	10/01/08	0 - 0.5	N	ND (2) *	6.2	93	ND (1) *	ND (1)	1.03	23	5.4	9.1	19	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	26	46
	10/01/08	2 - 3	N	ND (2) *	4.1	89	ND (1) *	ND (1)	ND (0.478)	9.7	4.3	5	4.5	ND (0.1) *	ND (1)	7.4	ND (1)	ND (1)	ND (2) *	17	17
AOC9-2	09/18/08	0 - 0.5	N	ND (2) *	3.2	120	ND (2) *	ND (1)	ND (0.401)	16	4.7	11	9.6	ND (0.099) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	25	33
	09/18/08	2 - 3	N	ND (2) *	3.3	150	ND (2) *	ND (1)	ND (0.406)	11	3	5.9	4.9	ND (0.1) *	ND (2) *	6.9	ND (1)	ND (2)	ND (4) *	20	20
AOC9-3	09/18/08	0 - 0.5	N	ND (2) *	3.2	110	ND (2) *	ND (1)	ND (0.402)	25	4.1	17	9	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4) *	24	49
	09/18/08	2 - 3	N	ND (2) *	3.5	130	ND (2) *	ND (1)	ND (0.454)	15	3.8	7.3	23	ND (0.1) *	ND (2) *	10	ND (1)	ND (2)	ND (4.1) *	23	92
AOC9-4	09/18/08	0 - 0.5	N	ND (2) *	3.7	120	ND (2) *	ND (1)	1.06	22	5	12	13	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4) *	29	53
	09/18/08	2 - 3	N	ND (2) *	3.9	110	ND (2) *	ND (1)	ND (0.402)	19	4.6	11	11	ND (0.1) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	25	42
AOC9-5	10/01/08	0 - 0.5	N	ND (2) *	4.9	90	ND (1) *	ND (1)	0.726	35	7.1	19	28	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	30	100
	10/01/08	2 - 3	N	ND (2) *	6	130	ND (2) *	ND (1)	1	38	7.6	21	25	0.27	ND (2) *	20	ND (1)	ND (2)	ND (4) *	31	76
	10/01/08	2 - 3	FD	ND (2) *	7	120	ND (2) *	ND (1)	0.791	43	7.7	19	24	0.23	ND (2) *	19	ND (1)	ND (2)	ND (4) *	34	85
AOC9-6	09/18/08	0 - 0.5	N	ND (2) *	3.8	180	ND (2) *	ND (1)	0.789	25	5.4	12	23	0.14	ND (2) *	13	ND (1)	ND (2)	ND (4) *	31	68
	09/18/08	2 - 3	N	ND (2.1) *	3.8	120	ND (2.1) *	ND (1)	ND (0.458)	16	5	9.3	5	ND (0.1) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.2) *	25	31
AOC9-7	09/18/08	0 - 0.5	N	ND (2) *	2.2	94	ND (2) *	ND (1)	4.37	72	4.2	14	15	ND (0.1) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	22	120
	09/18/08	2 - 3	N	ND (2) *	4.3	83	ND (1) *	ND (1)	ND (0.411)	13	2.9	6.7	20	ND (0.1) *	ND (1)	6.7	ND (1)	ND (1)	ND (2) *	18	29
AOC9-8	10/01/08	0 - 0.5	N	ND (2) *	3.6	100	ND (1) *	ND (1)	48.6 J	230	4.4	11	20	ND (0.1) *	1	10	ND (1)	ND (1)	ND (2) *	20	1,000
	10/01/08	2.5 - 3	N	ND (2.1) *	6.3	130	ND (2.1) *	ND (1)	2.41	41	5.3	13	59	ND (0.1) *	4.5	12	ND (1)	ND (2.1)	4.1	25	130
	10/01/08	5.5 - 6	N	ND (2) *	4	87	ND (1) *	ND (1)	1.32	13	3.7	5.5	4.4	ND (0.1) *	ND (1)	8.1	ND (1)	ND (1)	ND (2) *	17	21
AOC9-9	10/01/08	0 - 0.5	N	ND (2) *	5	120	ND (1) *	ND (1)	ND (0.404)	14	3.9	8	7	ND (0.1) *	ND (1)	8.1	ND (1)	ND (1)	ND (2) *	19	34
	10/01/08	2.5 - 3	N	ND (2.1) *	4.8	91	ND (1) *	ND (1)	ND (0.415)	21	6.9	10	3.8	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	32	41
	10/01/08	5.5 - 6	N	ND (2.1) *	4.9	97	ND (1) *	ND (1)	1.53	28	7.1	11	4.9	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	31	53
	10/01/08	5.5 - 6	FD	ND (2.1) *	4.5	87	ND (1) *	ND (1)	1.28	27	7.3	10	4.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	30	50
AOC9-10	10/01/08	0 - 0.5	N	ND (2) *	5.1	76	ND (1) *	ND (1)	0.418	28	6.8	11	18	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	30	49
	10/01/08	2 - 3	N	ND (2) *	7.3	110	ND (2) *	ND (1)	0.494	30	8.1	15	15	0.11	ND (2) *	19	ND (1)	ND (2)	ND (4) *	35	110
AOC9-11	09/18/08	0 - 0.5	N	ND (2.1) *	3.6	130	ND (2.1) *	ND (1.1) *	ND (0.418)	18	4.5	8.5	7.7	0.13	ND (2.1) *	11	ND (1.1)	ND (2.1)	ND (4.3) *	25	35
	09/18/08	2 - 3	N	ND (2) *	3.4	120	ND (2) *	ND (1)	ND (0.406)	20	4.3	9.7	7.1	ND (0.1) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	24	30
AOC9-12	10/01/08	0 - 0.5	N	ND (2) J*	7.3	190 J	ND (2) *	ND (1)	0.727	34	9.4	19	13	ND (0.1) *	ND (2) *	24	ND (1)	ND (2)	ND (4.1) *	38	57
	10/01/08	2 - 3	N	ND (2.1) *	6.6	220	ND (2.1) *	ND (1)	ND (0.415)	40	11	17	11	ND (0.1) *	ND (2.1) *	29	ND (1)	ND (2.1)	ND (4.1) *	40	50
AOC9-13	09/19/08	0 - 0.5	N	ND (2) J*	5.2	180	ND (2) *	ND (1)	ND (0.404)	18	4.7	13	8.3	ND (0.099) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	27	36
	09/19/08	2 - 3	N	ND (2) *	3.8	130	ND (2) *	ND (1)	ND (0.409)	23 J	4.7	9.8	10	ND (0.1) *	ND (2) *	13	ND (1)	ND (2)	ND (4.1) *	27	35
	09/19/08	2 - 3	FD	ND (2) *	3.6	110	ND (2) *	ND (1)	ND (0.41)	18 J	4.5	9.6	5.6	ND (0.1) *	ND (2) *	13	ND (1)	ND (2)	ND (4.1) *	24	32
AOC9-14	10/02/08 Θ	0 - 0.5	N	ND (2.1) *	12	170	ND (5.4) *	ND (1.1) *	1.7	31	ND (5.4)	24	34	ND (0.11) *	ND (5.4) *	10	ND (1.1)	ND (5.4) *	ND (11) *	19	81
	10/02/08	2 - 3	N	ND (2) *	7.1	160	ND (2) *	ND (1)	ND (0.412)	38	8.8	17	13	ND (0.1) *	ND (2) *	22	ND (1)	ND (2)	ND (4.1) *	33	61
AOC9-15	12/06/15	0 - 1	N	ND (2.2) *	2.6 J	160	ND (1.1) *	ND (1.1) *	ND (0.21)	24 J	5.5 J	17 J	15 J	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1) J	ND (2.2) *	25 J	52
	12/06/15	2 - 3	N	ND (2.1) *	3.1	170	ND (1) *	ND (1)	0.58	25	5	14	23	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	23	46

TABLE 3-5a

Sample Results: Metals
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC9-16	01/13/16	0 - 0.5	N	ND (2.1) *	3.3	72	ND (1) *	ND (1)	4.4	48	5.6	11	22	0.14	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	23	69
	01/13/16	2 - 3	N	ND (2) *	2.9	89	ND (1) *	ND (1)	ND (0.2)	17	5	18	6.8	0.11	ND (1)	11	ND (1)	ND (1)	ND (2) *	22	34
	01/13/16	5 - 6	N	ND (2) *	3.3	91	ND (1) *	ND (1)	ND (0.2)	14	4.5	6.3	7.1	ND (0.11) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	19	26
	01/13/16	9 - 10	N	ND (2) *	3.3	84	ND (1) *	ND (1)	ND (0.2)	12	4	6.2	2.9	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2) *	17	21
AOC9-17	01/10/16	9 - 10	N	---	---	---	---	---	1.2	---	---	---	---	---	---	---	---	---	---	---	---
	01/14/16	14 - 15	N	---	---	---	---	---	ND (0.21)	---	---	---	---	---	---	---	---	---	---	---	---
AOC9-18	01/10/16	5 - 6	N	ND (2) *	5.9	120	ND (1) *	ND (1)	0.55	25	7.4	17	14	0.18	ND (1)	15	ND (1)	ND (1)	ND (2) *	31	57
	01/10/16	9 - 10	N	ND (2.1) *	3.8	110	ND (1) *	ND (1)	0.94	20	5.3	11	28	0.75	ND (1)	9.9	ND (1)	ND (1)	ND (2.1) *	22	53
AOC9-19	01/13/16	0 - 0.5	N	ND (2.1) J*	4.2	110	ND (1) *	ND (1)	---	19	5.1	9.3	9.4	0.15	ND (1)	12	ND (1) J	ND (1)	ND (2.1) J*	21	42
	01/13/16	2 - 3	N	ND (2) *	3.7	89	ND (1) *	ND (1)	---	13	4	15	13	ND (0.1) *	ND (1)	7.8	ND (1)	ND (1)	ND (2) *	17	35
	01/13/16	5 - 6	N	ND (2) *	4.1	73	ND (1) *	ND (1)	---	13	4.5	7.6	7.4	0.12	ND (1)	9.9	ND (1)	ND (1)	ND (2) *	17	33
	01/13/16	9 - 10	N	ND (2) *	3.9	98	ND (1) *	ND (1)	---	17	5.5	14	5.1	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	21	29
AOC9-20	01/13/16	0 - 0.5	N	---	---	---	---	---	---	---	---	---	7.1	0.11	---	---	---	---	---	---	---
	01/13/16	2 - 3	N	---	---	---	---	---	---	---	---	---	11	0.12	---	---	---	---	---	---	---
	01/13/16	2 - 3	FD	---	---	---	---	---	---	---	---	---	9.3	ND (0.1) *	---	---	---	---	---	---	---
	01/13/16	5 - 6	N	---	---	---	---	---	---	---	---	---	47	0.16	---	---	---	---	---	---	---
	01/13/16	9 - 10	N	---	---	---	---	---	---	---	---	---	2.2	ND (0.1) *	---	---	---	---	---	---	---
AOC9-21	01/08/17	0 - 0.5	N	ND (2.1) *	3.4	130 J	ND (1) *	ND (1)	---	34	7.2	11	3.8	ND (0.1) *	ND (1)	17	ND (1) J	ND (1)	ND (2.1) J*	30 J	47 J
	01/08/17	0 - 0.5	FD	ND (2.1) *	3.6	170 J	ND (1.1) *	ND (1.1) *	---	33	8.2	13	4	ND (0.1) *	ND (1.1)	18	ND (1.1) J	ND (1.1)	ND (2.1) J*	31	45 J
	01/08/17	2 - 3	N	ND (2.1) *	3.1	200	ND (1) *	1.1	---	48	15	23	2.7	ND (0.1) *	ND (1)	38	ND (1) J	ND (1)	ND (2.1) J*	46	44
	01/08/17	5 - 6	N	ND (2.1) *	3	220	ND (1) *	1.1	---	57	12	22	2.4	ND (0.1) *	ND (1)	38	ND (1) J	ND (1)	ND (2.1) J*	47	42
AOC9-22	01/04/17	0 - 0.5	N	ND (2.4) *	4.6	190	ND (1.2) *	ND (1.2) *	---	30	8.2	23	17	ND (0.12) *	ND (1.2)	18	ND (1.2) J	ND (1.2)	ND (2.4) J*	32	60
	01/04/17	2 - 3	N	ND (2.1) *	5.1	140	ND (1) *	ND (1)	---	62	6.8	27	20	0.17	ND (1)	16	ND (1) J	ND (1)	ND (2.1) J*	28	42
	01/04/17 Y	2.5 - 2.6	N	ND (2.9) *	4.6	220	ND (1.4) *	ND (1.4) *	0.79	64	14	16	5.4	ND (0.14) *	ND (1.4) *	39	ND (1.4) J	ND (1.4)	ND (2.9) J*	48	48
	01/04/17	4.5 - 5	N	ND (2.2) *	1.5	130	ND (1.1) *	ND (1.1) *	---	41	2.6	13	6.4	ND (0.11) *	ND (1.1)	5.9	ND (1.1) J	ND (1.1)	ND (2.2) J*	18	18
PA-05	11/09/15	0 - 1	N	ND (2) *	3.6	130	ND (1) *	ND (1)	0.42	27	6.9	16	7.4	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2) *	33	83
PA-23	01/27/16	0 - 1	N	ND (2.1) *	11	64	ND (1.1) *	ND (1.1) *	0.52	8.9	3.3	6.7	5.1	ND (0.11) *	ND (1.1)	6.3	ND (1.1)	ND (1.1)	ND (2.1) *	18	49
#4	04/06/00	0 - 3	N	---	---	---	---	---	4.2	53.2	---	12.4	---	---	---	13.5	---	---	---	---	343
#5	04/06/00	0 - 3	N	---	---	---	---	---	2.7	29	---	13.8	---	---	---	16.3	---	---	---	---	64
#6	04/06/00	0 - 3	N	---	---	---	---	---	2.6	33	---	12.4	---	---	---	13.2	---	---	---	---	92.7
#7	04/06/00	0 - 3	N	---	---	---	---	---	1.3	32.1	---	15.3	---	---	---	16.3	---	---	---	---	68
#8	04/06/00	0 - 3	N	---	---	---	---	---	2.8	28.8	---	12.9	---	---	---	16.4	---	---	---	---	61.1
#9	04/06/00	0 - 3	N	---	---	---	---	---	2.7	92.7	---	50.4	---	---	---	10.1	---	---	---	---	215
#10	04/06/00	0 - 3	N	---	---	---	---	---	114	398	---	17.9	---	---	---	14.8	---	---	---	---	744
#11	04/06/00	0 - 3	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	80.3
#12	04/06/00	0 - 3	N	---	---	---	---	---	0.8	38.3	---	35.6	---	---	---	21.1	---	---	---	---	---

TABLE 3-5a

Sample Results: Metals
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

Θ	white powder sample.
Y	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.
[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-5b

Sample Results: Contract Laboratory Program Inorganics
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Interim Screening Level[1] :	16,400	66,500	29,303	12,100	402	4,400	2,070	0.9
			Residential Regional Screening Levels[2] :	77,000	NE	55,000	NE	1,800	NE	NE	23
			Residential DTSC-SL[3] :	NE	NE	NE	NE	1,800	NE	NE	NE
			Ecological Comparison Values[4] :	NE	NE	NE	NE	220	NE	NE	0.9
			Background[5] :	16,400	66,500	29,303	12,100	402	4,400	2,070	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC9-5	10/01/08	0 - 0.5	N	10,000	26,000	17,000	7,400	250	2,300	810	ND (1.01) *
AOC9-11	09/18/08	0 - 0.5	N	6,900	26,000	12,000	5,700	210	1,500	450	ND (1.04) *
AOC9-12	10/01/08	0 - 0.5	N	13,000	38,000	22,000 J	9,600 J	310 J	2,500	620	ND (1.04) *
AOC9-21	01/08/17	0 - 0.5	N	9,100	25,000	19,000	6,800 J	230	1,900 J	260	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-5c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Category 1																								
AOC9-1	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	13	18	21	16	20	24	ND (5)	34	ND (5)	16	ND (5)	12	32	12	194	26
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC9-2	09/18/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.6	9.5	6.2	ND (5)	7.4	ND (5)	10	ND (5)	5.5	ND (5)	ND (5)	9.7	ND	54.9	11
	09/18/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC9-3	09/18/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	12	16	24	14	11	20	ND (5)	32	ND (5)	14	ND (5)	9.1	29	9.1	172	24
	09/18/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC9-4	09/18/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	19	23	32	19	14	27	ND (5)	44	ND (5)	18	ND (5)	13	41	13	237	33
	09/18/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	18	22	31	18	14	28	ND (5)	44	ND (5)	18	ND (5)	15	41	15	234	31
AOC9-5	10/01/08	0 - 0.5	N	160	120	5.1	ND (5) J	ND (5)	60	73	77	58	90	95	17	140	ND (5)	52	16	46	130	347.1	792	110
	10/01/08	2 - 3	N	220 J	240 J	ND (5.1)	ND (5.1) J	ND (5.1)	57	75	75	62	94	93	18	130	ND (5.1)	53	32	39	120	531	777	110
	10/01/08	2 - 3	FD	120 J	81 J	ND (5.1)	ND (5.1) J	ND (5.1)	44	60	63	53	81	73	15	100	ND (5.1)	48	13	31	100	245	637	91
AOC9-6	09/18/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	54	77	120	50	36	87	12	130	ND (5.1)	43	ND (5.1)	26	130	26	739	110
	09/18/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.8	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.2	ND	18.2	6.3
AOC9-7	09/18/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	17	21	33	20	9.3	26	5.1	44	ND (5)	18	ND (5)	11	38	11	231.4	33
	09/18/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.3	10	15	6.7	7.4	11	ND (5)	14	ND (5)	6.4	ND (5)	ND (5)	14	ND	90.8	15
AOC9-8	10/01/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	36	46	50	36	62	64	12	97	ND (5.1)	35	ND (5.1)	30	88	30	526	71
	10/01/08	2.5 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	16	22	23	18	27	27	6.8	38	ND (5.1)	16	ND (4.8)	14	36	14	229.8	35
	10/01/08	5.5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	13	10	12	6.5	12	15	ND (5.1)	27	ND (5.1)	6.1	ND (3.5)	7.5	25	7.5	126.6	16
AOC9-9	10/01/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	8.2	15	16	15	18	17	ND (5.1)	21	ND (5.1)	13	ND (5.1)	6.8	20	6.8	143.2	21
	10/01/08	2.5 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	7.2	7.2	7.4	9	7.1	ND (5.2)	7.2	ND (5.2)	6.5	ND (4.4)	ND (5.2)	7.5	ND	59.1	12
	10/01/08	5.5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	9	13	14	12	16	15	ND (5.2)	19	ND (5.2)	10	ND (4.6)	5.5	18	5.5	126	19
	10/01/08	5.5 - 6	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	6.3	9	11	9	11	10	ND (5.2)	12	ND (5.2)	7.7	ND (4.1)	ND (5.2)	12	ND	88	14
AOC9-10	10/01/08	0 - 0.5	N	5.9	ND (5)	ND (5)	ND (5) J	ND (5)	30	34	40	33	34	40	11	71	ND (5)	29	ND (5)	22	63	27.9	385	55
	10/01/08	2 - 3	N	51	36	ND (5.1)	ND (5.1) J	ND (5.1)	30	45	46	41	53	54	14	74	ND (5.1)	36	5.8	21	71	113.8	464	71
AOC9-11	09/18/08	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	11	16	21	13	10	17	ND (5.3)	25	ND (5.3)	12	ND (5.3)	5.5	23	5.5	148	23
	09/18/08	2 - 3	N	45	56	ND (5.1)	ND (5.1)	ND (5.1)	13	15	21	12	9.2	18	ND (5.1)	28	ND (5.1)	12	9	8.4	26	118.4	154.2	22
AOC9-12	10/01/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	8.8	14	18	14	15	17	ND (5.1)	24	ND (5.1)	12	ND (5.1)	7.2	22	7.2	144.8	21
	10/01/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6	ND	12.3	6
AOC9-13	09/19/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	31	45	41	25	53	60	9.8	87	ND (5)	27	ND (5)	26	81	26	459.8	65
	09/19/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	20	8.1	5.9	ND (5.1)	39 J	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (5.1)	49 J	19	49	102	24
	09/19/08	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.1	14	14	8.6	14	18 J	ND (5.1)	27	ND (5.1)	8.7	ND (4.9)	9 J	24	9	137.4	20
AOC9-14	10/02/08 ϴ	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/02/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.5 J	15 J	15 J	19 J	17 J	15 J	16 J	17 J	10 J	ND (5.1)	17 J	ND (5.1)	ND (5.1)	11 J	6.5	152	37
AOC9-15	12/06/15	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	40	68	130	65	ND (54)	70	ND (54)	140	ND (5.4)	57	ND (5.4)	34	130	34	700	120
	12/06/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	100	120	270	29	69	120	9.1	270	ND (5.3)	33	ND (5.3)	56	250	56	1,270	170

TABLE 3-5c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC9-16	01/13/16	0 - 0.5	N	ND (5.2)	9.8	ND (5.2)	ND (5.2)	ND (5.2)	32	ND (52)	110	ND (52)	ND (52)	30	ND (52)	55	ND (5.2)	ND (52)	ND (5.2)	18	50	27.8	277	69
	01/13/16	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.7	11	23	ND (5)	9.4	10	ND (5)	19	ND (5)	ND (5)	ND (5)	ND (5)	18	ND	98.1	17
	01/13/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	01/13/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC9-18	01/10/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	31	57 J	88 J	ND (51)	ND (51)	54	ND (51)	76	ND (5.1)	ND (51)	ND (5.1)	17	76	17	382	97
	01/10/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	73 J	120	250	ND (52)	90 J	130 J	ND (52)	140	ND (5.2)	ND (52)	ND (5.2)	43	130	43	933	180
AOC9-19	01/13/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	16	32	7.9	8.5	20	ND (5.1)	28	ND (5.1)	7.2	ND (5.1)	6.8	27	6.8	157.6	24
	01/13/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	15	23	44	10	13	27	ND (5.1)	39	ND (5.1)	9.8	ND (5.1)	9.1	41	9.1	221.8	33
	01/13/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/13/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC9-20	01/13/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.2	7.3	17	ND (5.2)	7.3	8	ND (5.2)	16	ND (5.2)	ND (5.2)	ND (5.2)	5.9	15	5.9	76.8	13
	01/13/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	74 J	72 J	110 J	19	42 J	58	ND (5.2)	110 J	ND (5.2)	19	ND (5.2)	41 J	100 J	41	604	95
	01/13/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	28 J	ND (52)	100	ND (52)	ND (52)	26	ND (52)	51 J	ND (5.2)	ND (52)	ND (5.2)	14 J	47 J	14	252	68
	01/13/16	5 - 6	N	ND (5.1)	ND (5.1)	9.9	ND (5.1)	23	260	240	380	75	170	190	ND (51)	540	5.1	72	ND (5.1)	220	470	258	2,397	340
	01/13/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC9-21	01/08/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	13	11	28 J	ND (5.2)	8.4	19	ND (5.2)	24 J	ND (5.2)	ND (5.2)	ND (5.2)	8.4	24 J	8.4	127.4	18
	01/08/17	0 - 0.5	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	24	13	26 J	7.7	6.3	21	ND (5.3)	37 J	ND (5.3)	6.7	ND (5.3)	14	39 J	14	180.7	21
	01/08/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/08/17	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC9-22	01/04/17	0 - 0.5	N	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	5.9	140	130	300	57	61	150	ND (5.9)	290	ND (5.9)	59	ND (5.9)	93	270	98.9	1,457	180
	01/04/17	2 - 3	N	ND (5.3)	ND (5.3)	5.3	ND (5.3)	41	1,000	730	1,300	150	270	830	ND (5.3)	1,800	ND (5.3)	160	ND (5.3)	460	1,600	506.3	7,840	980
	01/04/17	4.5 - 5	N	ND (5.5)	ND (5.5)	53	ND (5.5)	190	860	410	780	210	190	660	ND (5.5)	2,200	29	190	ND (5.5)	1,500	1,700	1,772	7,200	600
PA-05	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.1	16	7.4	ND (5.1)	11	ND (5.1)	15	ND (5.1)	6.1	ND (5.1)	ND (5.1)	14	ND	77.6	13
PA-23	01/27/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	43	65	98	69	44	68	ND (5.3)	84	ND (5.3)	53	ND (5.3)	28	79	28	603	88

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-5d

Sample Results: Total Petroleum Hydrocarbons
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC9-1	10/01/08	0 - 0.5	N	ND (10)	ND (10)
	10/01/08	2 - 3	N	ND (10)	14.2
AOC9-2	09/18/08	0 - 0.5	N	ND (10)	ND (10)
	09/18/08	2 - 3	N	ND (10)	ND (10)
AOC9-3	09/18/08	0 - 0.5	N	ND (10)	24.4
	09/18/08	2 - 3	N	ND (10)	17.3
AOC9-4	09/18/08	0 - 0.5	N	ND (10)	11.8
	09/18/08	2 - 3	N	ND (10)	11.7
AOC9-5	10/01/08	0 - 0.5	N	ND (10)	61.6
	10/01/08	2 - 3	N	ND (10)	55.4
	10/01/08	2 - 3	FD	ND (10)	59.4
AOC9-6	09/18/08	0 - 0.5	N	ND (101)	ND (101)
	09/18/08	2 - 3	N	ND (10)	ND (10)
AOC9-7	09/18/08	0 - 0.5	N	ND (10)	31.1
	09/18/08	2 - 3	N	ND (10)	ND (10)
AOC9-8	10/01/08	0 - 0.5	N	ND (10)	42.7
	10/01/08	2.5 - 3	N	ND (10)	48.8
	10/01/08	5.5 - 6	N	ND (10)	15.5
AOC9-9	10/01/08	0 - 0.5	N	ND (10)	20.3
	10/01/08	2.5 - 3	N	ND (10)	ND (10)
	10/01/08	5.5 - 6	N	ND (10)	ND (10)
	10/01/08	5.5 - 6	FD	ND (10)	ND (10)
AOC9-10	10/01/08	0 - 0.5	N	ND (10)	12.1
	10/01/08	2 - 3	N	ND (10)	22
AOC9-11	09/18/08	0 - 0.5	N	ND (10)	51.8
	09/18/08	2 - 3	N	ND (10)	46.7
AOC9-12	10/01/08	0 - 0.5	N	ND (10)	19.9
	10/01/08	2 - 3	N	ND (10)	ND (10)
AOC9-13	09/19/08	0 - 0.5	N	ND (10)	19.2 J
	09/19/08	2 - 3	N	13	77.9 J
	09/19/08	2 - 3	FD	12.9	62 J
AOC9-14	10/02/08 Θ	0 - 0.5	N	ND (10) J	48.4 J
	10/02/08	2 - 3	N	34.8	702 J
PA-05	11/09/15	0 - 1	N	ND (10)	ND (10)
PA-23	01/27/16	0 - 1	N	77	110

TABLE 3-5d

Sample Results: Total Petroleum Hydrocarbons
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ϴ	white powder sample.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-5e

Sample Results: General Chemistry Parameters
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	NE
			Residential Regional Screening Levels [2]:	NE
			Residential DTSC-SL [3]:	NE
			Ecological Comparison Values [4]:	NE
			Background [5]:	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC9-1	10/01/08	0 - 0.5	N	8.52
	10/01/08	2 - 3	N	8.17
AOC9-2	09/18/08	0 - 0.5	N	8.62
	09/18/08	2 - 3	N	8.72
AOC9-3	09/18/08	0 - 0.5	N	7.92
	09/18/08	2 - 3	N	8.22
AOC9-4	09/18/08	0 - 0.5	N	7.63
	09/18/08	2 - 3	N	7.69
AOC9-5	10/01/08	0 - 0.5	N	9.12
	10/01/08	2 - 3	N	8.91
	10/01/08	2 - 3	FD	9.01
AOC9-6	09/18/08	0 - 0.5	N	8.77
	09/18/08	2 - 3	N	8.34
AOC9-7	09/18/08	0 - 0.5	N	8.27
	09/18/08	2 - 3	N	8.71
AOC9-8	10/01/08	0 - 0.5	N	8.2
	10/01/08	2.5 - 3	N	8.68
	10/01/08	5.5 - 6	N	8.42
AOC9-9	10/01/08	0 - 0.5	N	9.13
	10/01/08	2.5 - 3	N	8.36
	10/01/08	5.5 - 6	N	8.54
	10/01/08	5.5 - 6	FD	8.57
AOC9-10	10/01/08	0 - 0.5	N	9.23
	10/01/08	2 - 3	N	8.94
AOC9-11	09/18/08	0 - 0.5	N	8.65
	09/18/08	2 - 3	N	8.07
AOC9-12	10/01/08	0 - 0.5	N	8.48
	10/01/08	2 - 3	N	8.55
AOC9-13	09/19/08	0 - 0.5	N	8.57
	09/19/08	2 - 3	N	8.28
	09/19/08	2 - 3	FD	8.45
AOC9-14	10/02/08 ϴ	0 - 0.5	N	9.41
	10/02/08	2 - 3	N	9.08
#4	04/06/00	0 - 3	N	9.62
#5	04/06/00	0 - 3	N	9.75

TABLE 3-5e

Sample Results: General Chemistry Parameters
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
Interim Screening Level [1]:				**NE**
Residential Regional Screening Levels [2]:				**NE**
Residential DTSC-SL [3]:				**NE**
Ecological Comparison Values [4]:				**NE**
Background [5]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
#6	04/06/00	0 - 3	N	9.66
#7	04/06/00	0 - 3	N	9.6
#8	04/06/00	0 - 3	N	8.95
#9	04/06/00	0 - 3	N	9.67
#10	04/06/00	0 - 3	N	8.2
#11	04/06/00	0 - 3	N	8.9

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

Θ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
μS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-5f

Sample Results: Pesticides

AOC 9 – Southeast Fence Line

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC9-5	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC9-11	09/18/08	0 - 0.5	N	ND (2.1) *	3.2	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC9-12	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC9-15	12/06/15	0 - 1	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1) J	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1) J	ND (5.4)	ND (54) J
	12/06/15	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC9-16	01/13/16	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	01/13/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	01/13/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC9-19	01/13/16	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/13/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/13/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/13/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC9-20	01/13/16	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	2 - 3	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/13/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC9-21	01/08/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

TABLE 3-5f

Sample Results: Pesticides
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-5g

Sample Results: Polychlorinated Biphenyls
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC9-5	10/01/08	0 - 0.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	160	ND (16)	ND (16)	ND (16)	168
	10/01/08	2 - 3	N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	160 J	ND (17) J	ND (17) J	ND (17) J	168.5
AOC9-11	09/18/08	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)
AOC9-12	10/01/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	44	ND (17)	ND (17)	ND (17)	52.5
	10/01/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17)
AOC9-15	12/06/15	0 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	580	360	---	---	940
	12/06/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	690	300	---	---	990
AOC9-16	01/13/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	260	ND (17)	---	---	268.5
	01/13/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/13/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	20	ND (17)	---	---	28.5
	01/13/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC9-18	01/10/16	5 - 6	N	17 R	34 R	17 R	17 R	17 R	35 J	17 R	---	---	43.5 JR
AOC9-19	01/13/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	26	21	---	---	47
	01/13/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	29	19	---	---	48
	01/13/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/13/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC9-20	01/13/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	53	ND (17)	---	---	61.5
	01/13/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	20	ND (17)	---	---	28.5
	01/13/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	36	ND (17)	---	---	44.5
	01/13/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	87	39	---	---	126
	01/13/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC9-21	01/08/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17)	28	32	---	---	60
	01/08/17	0 - 0.5	FD	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17)	26	32	---	---	58
	01/08/17	2 - 3	N	ND (16)	ND (31)	ND (16)	ND (16) J	ND (16)	ND (16)	ND (16)	---	---	ND (16)
	01/08/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (17)

TABLE 3-5g

Sample Results: Polychlorinated Biphenyls
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	4,100	200	170	230	230	240	240	240	240	204
			Residential Regional Screening Levels [2] :	4,100	200	170	230	230	240	240	240	240	230
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	204
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC9-22	01/04/17	0 - 0.5	N	ND (19)	ND (39)	ND (19)	ND (19) J	ND (19) J	780	550	---	---	1,330
	01/04/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	1,400	930	---	---	2,330
	01/04/17	4.5 - 5	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18) J	ND (18)	ND (18)	---	---	ND (18)
PA-05	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	20	ND (17)	---	---	45.5
PA-23	01/27/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	76	95	---	---	188

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-5h

Sample Results: Dioxins and Furans
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
Category 1																							
AOC9-2	09/18/08	0 - 0.5	N	67 J	5.3 J	0.6 J	ND (0.74) J	ND (0.29) J	1.8 J	ND (0.65) J	1.2 J	ND (0.35) J	ND (0.23) J	ND (0.46) J	ND (6) J	ND (0.2) J	ND (0.081) J	ND (0.31) J	610 J	12 J	1.1	1.8	1.8
	09/18/08	2 - 3	N	66 J	4.9 J	ND (0.27) J	ND (0.41) J	ND (0.22) J	ND (1.4) J	ND (0.25) J	ND (0.39) J	ND (0.33) J	ND (0.33) J	ND (0.35) J	ND (4.5) J	ND (0.37) J	ND (0.042) J	ND (0.12) J	810 J	9.9 J	0.95	1.6	1.6
AOC9-8	10/01/08	2.5 - 3	N	3,200 J	210 J	15 J	21 J	9.3 J	59 J	ND (6) J	19 J	3.3 J	6.1 J	ND (2.4) J	ND (350) J	3.1 J	ND (0.44) J	ND (1.2) J	34,000 J	490 J	42	81	81
AOC9-15	12/06/15	0 - 1	N	1,700 J	130 J	10 J	18 J	7.8 J	46 J	6.1 J	29 J	ND (2.4) J	11 J	2.9 J	ND (220) J	4.6 J	ND (0.09) J	3 J	18,000 J	310 J	41	59	59
	12/06/15	2 - 3	N	5,500 J	430 J	32 J	48 J	28 J	140 J	38 J	90 J	6.8 J	28 J	19 J	ND (350) J	12 J	ND (2) J	ND (0.73) J	41,000 J	940 J	95	160	160
AOC9-16	01/13/16	0 - 0.5	N	9,300 J	210 J	ND (17) J	110 J	20 J	150 J	12 J	60 J	5.5 J	17 J	ND (6.3) J	ND (420) J	6.9 J	ND (2.4) J	ND (3.5) J	51,000 J	400 J	82	190	190
	01/13/16	2 - 3	N	290 J	23 J	ND (1.7) J	2.9 J	ND (2.6) J	ND (6.1) J	ND (1.4) J	4 J	ND (0.55) J	ND (1.2) J	3.4 J	ND (23) J	ND (1.7) J	ND (0.22) J	1.5 J	2,800 J	70 J	6.2	7.6	7.6
	01/13/16	5 - 6	N	600 J	55 J	ND (3.4) J	ND (3.7) J	2.4 J	ND (10) J	ND (2.1) J	ND (7.3) J	ND (0.39) J	ND (2) J	ND (1.2) J	ND (34) J	ND (1.2) J	ND (0.26) J	ND (0.27) J	7,200 J	290 J	6.4	13	13
AOC9-18	01/10/16	5 - 6	N	2,000 J	150 J	9.8 J	12 J	9.7 J	46 J	6.5 J	17 J	ND (2.6) J	5.2 J	3.4 J	ND (240) J	3.6 J	ND (0.14) J	2.4 J	18,000 J	300 J	34	55	55
AOC9-19	01/13/16	0 - 0.5	N	1,000 J	70 J	6.3 J	6.6 J	5 J	ND (20) J	ND (3.5) J	9.6 J	ND (1.5) J	ND (1.2) J	ND (1.6) J	ND (110) J	ND (1.8) J	ND (0.17) J	1.2 J	9,400 J	170 J	13	24	24
	01/13/16	2 - 3	N	430 J	34 J	ND (2.3) J	ND (4.3) J	ND (1.8) J	10 J	ND (2.1) J	6.9 J	ND (0.67) J	ND (1.4) J	ND (2.6) J	ND (42) J	ND (0.77) J	ND (0.13) J	ND (0.99) J	4,000 J	90 J	6.2	11	11
	01/13/16	5 - 6	N	220 J	19 J	ND (0.88) J	1.7 J	ND (1.1) J	ND (4.8) J	ND (0.82) J	ND (1.6) J	ND (1) J	ND (0.97) J	1.6 J	ND (31) J	ND (0.63) J	ND (0.15) J	ND (0.57) J	2,000 J	46 J	3.8	5.9	5.9
AOC9-20	01/13/16	0 - 0.5	N	410 J	36 J	ND (2.3) J	ND (1.1) J	ND (1.2) J	ND (8.6) J	2.4 J	ND (5.1) J	ND (0.64) J	ND (1.6) J	ND (1.2) J	ND (39) J	ND (1.2) J	ND (0.25) J	ND (0.55) J	3,600 J	97 J	5.6	9.8	9.8
	01/13/16	2 - 3	N	540 J	38 J	2.7 J	4.6 J	ND (3.4) J	ND (12) J	ND (3.8) J	6.9 J	ND (1.2) J	ND (1.7) J	3.2 J	ND (44) J	ND (1.3) J	ND (0.23) J	2.8 J	3,500 J	72 J	9.6	13	13
	01/13/16	5 - 6	N	1,300 J	110 J	ND (7.6) J	11 J	ND (9.3) J	30 J	ND (7) J	ND (14) J	ND (0.91) J	ND (4.9) J*	9.9 J	ND (130) J	ND (4.7) J	ND (0.48) J	9.1 J	12,000 J	230 J	28	35	35
AOC9-21	01/08/17	0 - 0.5	N	3,500	360 J	27 J	14	ND (17)	77	ND (15)	23	ND (20)	ND (2.6)	ND (5.5)	ND (940)	ND (5.6)	ND (0.49)	ND (0.51)	24,000	820	68	110	110
	01/08/17	0 - 0.5	FD	3,600	380	25	ND (9.8)	ND (15)	81	ND (13)	22	ND (17)	ND (3.3)	ND (1)	ND (900)	ND (1)	ND (0.23)	ND (0.83)	34,000 J	870	64	110	110
	01/08/17	2 - 3	N	ND (18)	ND (0.3)	ND (0.8)	ND (0.19)	ND (0.22)	ND (0.26)	ND (0.17)	ND (0.17)	ND (0.25)	ND (0.17)	ND (0.39)	ND (1.5)	ND (0.19)	ND (0.12)	ND (0.098)	170	ND (2.9)	0.46	0.47	0.47
	01/08/17	5 - 6	N	ND (5.6)	ND (0.87)	ND (0.19)	ND (0.22)	ND (0.35)	ND (0.24)	ND (0.3)	ND (0.19)	ND (0.39)	ND (0.063)	ND (0.13)	ND (0.35)	ND (0.13)	ND (0.16)	ND (0.36)	ND (94)	ND (2.2)	ND (0.46)	ND (0.3)	ND (0.3)
AOC9-22	01/04/17	0 - 0.5	N	960	49	ND (2.6)	9.9 J	ND (1.4)	22	5.5 J	13	ND (1.6)	ND (5.2) *	11 J	ND (110)	ND (2.5)	ND (0.26)	11	8,100	87	27	28	28
	01/04/17	2 - 3	N	3,800	200	18	20	23	63	ND (32)	26	ND (6.4)	ND (73) *	ND (3.8)	ND (5.6)	ND (3.8)	ND (1.4)	ND (7.7)	24,000	480	60	100	100
	01/04/17	4.5 - 5	N	100	ND (5.3)	ND (6.5)	ND (0.34)	ND (0.35)	3.9 J	ND (0.75)	1.1 J	ND (0.41)	ND (0.32)	ND (1.6)	ND (44)	ND (0.15)	ND (0.1)	ND (0.19)	1,000	22 J	3.2	4.4	4.4
PA-23	01/27/16	0 - 1	N	680 J	67 J	5.7 J	ND (6.3) J	19 J	19 J	8.5 J	ND (9.5) J	ND (2.4) J	ND (1.9) J	28 J	ND (59) J	ND (11) J	ND (1.2) J	36 J	6,700 J	96 J	55	26	26

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the Interim Screening Level are circled.

--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate

J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-5i

Sample Results: Asbestos
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Asbestos PLM/BULK [1]	Asbestos CARB435/ [2] PLM (%)	Asbestos TEM [3] (%)
Category 1						
AOC9-14	10/02/08	0 - 0.5	N	Present	---	ND (0.07)
	10/02/08	2 - 3	N	Present	<0.1	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

ϴ	white powder sample.
---	not analyzed
ft bgs	feet below ground surface
FD	field duplicate
N	primary sample

1 Polarized light microscopy of bulk samples
2 California Air Resource Board Method 435 / polarized light microscopy of bulk samples
3 Transmission electron microscopy

TABLE 3-5j

Constituent Concentrations in Soil Compared to Screening Values
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	10	21 / 22 (95%)	95	15	(5.98)	10	(16)	NA	(NE)	NA	(NA)	NA	(NE)	10	(16)
TEQ Human	ng/kg	10	21 / 22 (95%)	190	17	(5.58)	NA	(NE)	7	(50)	NA	(NA)	0	(220)	7	(50)
TEQ Mammals	ng/kg	10	21 / 22 (95%)	190	17	(5.58)	17	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	17	(5.58)
Metals																
Antimony	mg/kg	22	0 / 49 (0%)	ND (2.4) ‡	NA	(NE)	0	(0.285)	0	(31)	NA	(NA)	0	(470)	0	(0.285)
Arsenic	mg/kg	22	49 / 49 (100%)	11	0	(11)	0	(11.4)	0	(0.11) *	NA	(NA)	0	(0.36) *	0	(11)
Barium	mg/kg	22	49 / 49 (100%)	220	0	(410)	0	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	0	(410)
Beryllium	mg/kg	22	0 / 49 (0%)	ND (2.1) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	22	2 / 49 (4.1%)	1.1	0	(1.1)	0	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	0	(1.1)
Chromium, Hexavalent	mg/kg	28	28 / 49 (57%)	114	18	(0.83)	0	(139.6)	18	(0.3)	NA	(NA)	2	(6.3)	18	(0.83)
Chromium, Hexavalent-SPLP	mg/L	2	2 / 2 (100%)	1.57	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Chromium, total	mg/kg	30	57 / 57 (100%)	398	13	(39.8)	13	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	13	(39.8)
Chromium-SPLP	mg/L	2	2 / 2 (100%)	1.7	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Cobalt	mg/kg	22	49 / 49 (100%)	15	1	(12.7)	1	(13)	0	(23)	NA	(NA)	0	(350)	1	(12.7)
Copper	mg/kg	30	57 / 57 (100%)	50.4	16	(16.8)	7	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	16	(16.8)
Lead	mg/kg	23	53 / 53 (100%)	59	30	(8.39)	30	(0.0166) *	0	(80)	NA	(NA)	0	(320)	30	(8.39)
Mercury	mg/kg	23	14 / 53 (26%)	0.75	NA	(NE)	14	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	14	(0.0125)
Molybdenum	mg/kg	22	2 / 49 (4.1%)	4.5	1	(1.37)	1	(2.25)	0	(390)	NA	(NA)	0	(5,800)	1	(1.37)
Nickel	mg/kg	30	57 / 57 (100%)	38	3	(27.3)	3	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	3	(27.3)
Thallium	mg/kg	22	1 / 49 (2.0%)	4.1	NA	(NE)	1	(2.32)	1	(0.78)	NA	(NA)	0	(12)	1	(0.78)
Vanadium	mg/kg	22	49 / 49 (100%)	47	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	30	57 / 57 (100%)	1,000	20	(58)	20	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	20	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	4	4 / 4 (100%)	13,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	4	4 / 4 (100%)	38,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	4	4 / 4 (100%)	22,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	4	4 / 4 (100%)	9,600	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	4	4 / 4 (100%)	310	0	(402)	0	(220)	0	(1,800)	NA	(NA)	0	(6,900)	0	(402)
Potassium	mg/kg	4	4 / 4 (100%)	2,500	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	4	4 / 4 (100%)	810	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	3	0 / 3 (0%)	ND (1.04) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Polycyclic Aromatic Hydrocarbons																
1-Methyl naphthalene	µg/kg	23	5 / 53 (9.4%)	220	NA	(NE)	NA	(NE)	0	(18,000)	NA	(NA)	0	(73,000)	0	(18,000)
2-Methyl naphthalene	µg/kg	23	5 / 53 (9.4%)	240	NA	(NE)	NA	(NE)	0	(240,000)	NA	(NA)	0	(3,000,000)	0	(240,000)
Acenaphthene	µg/kg	23	4 / 53 (7.5%)	53	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	23	5 / 53 (9.4%)	190	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Benzo (a) anthracene	µg/kg	23	38 / 53 (72%)	1,000	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	23	40 / 53 (75%)	730	NA	(NE)	NA	(NE)	6	(110)	NA	(NA)	0	(2,100)	6	(110)
Benzo (b) fluoranthene	µg/kg	23	42 / 53 (79%)	1,300	NA	(NE)	NA	(NE)	1	(1,100)	NA	(NA)	0	(21,000)	1	(1,100)
Benzo (ghi) perylene	µg/kg	23	36 / 53 (68%)	210	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	23	36 / 53 (68%)	270	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)

TABLE 3-5j

Constituent Concentrations in Soil Compared to Screening Values
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
Chrysene	µg/kg	23	41 / 53 (77%)	830	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	23	11 / 53 (21%)	18	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Fluoranthene	µg/kg	23	43 / 53 (81%)	2,200	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Fluorene	µg/kg	23	2 / 53 (3.8%)	29	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	23	36 / 53 (68%)	190	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Naphthalene	µg/kg	23	4 / 53 (7.5%)	32	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	23	35 / 53 (66%)	1,500	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	23	43 / 53 (81%)	1,700	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	23	53 / 53 (100%)	1,772	12	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	23	53 / 53 (100%)	7,840	18	(267.4)	5	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	5	(1,160)
B(a)P Equivalent	µg/kg	23	43 / 53 (81%)	980	17	(55)	NA	(NE)	10	(110)	NA	(NA)	0	(2,100)	10	(110)
Polychlorinated biphenyls																
Aroclor 1016	µg/kg	12	1 / 28 (3.6%)	17	NA	(NE)	NA	(NE)	0	(4,100)	NA	(NA)	0	(27,000)	0	(4,100)
Aroclor 1221	µg/kg	12	1 / 28 (3.6%)	34	NA	(NE)	NA	(NE)	0	(200)	NA	(NA)	0	(830)	0	(200)
Aroclor 1232	µg/kg	12	1 / 28 (3.6%)	17	NA	(NE)	NA	(NE)	0	(170)	NA	(NA)	0	(720)	0	(170)
Aroclor 1242	µg/kg	12	1 / 28 (3.6%)	17	NA	(NE)	NA	(NE)	0	(230)	NA	(NA)	0	(950)	0	(230)
Aroclor 1248	µg/kg	12	1 / 28 (3.6%)	17	NA	(NE)	NA	(NE)	0	(230)	NA	(NA)	0	(950)	0	(230)
Aroclor 1254	µg/kg	12	18 / 28 (64%)	1,400	NA	(NE)	NA	(NE)	5	(240)	NA	(NA)	1	(970)	5	(240)
Aroclor 1260	µg/kg	12	10 / 28 (36%)	930	NA	(NE)	NA	(NE)	4	(240)	NA	(NA)	0	(990)	4	(240)
Total PCBs	µg/kg	12	18 / 28 (64%)	2,330	NA	(NE)	5	(204)	5	(230)	NA	(NA)	4	(940)	5	(204)
Pesticides																
4,4-DDE	µg/kg	8	1 / 18 (5.6%)	3.2	NA	(NE)	1	(2.1)	0	(2,000)	NA	(NA)	0	(9,300)	1	(2.1)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	16	3 / 31 (9.7%)	77	NA	(NE)	NA	(NE)	0	(230)	0	(230)	0	(1,100)	0	(230)
TPH as motor oil	mg/kg	16	21 / 31 (68%)	702	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-5j

Constituent Concentrations in Soil Compared to Screening Values
AOC 9 – Southeast Fence Line
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-6a

Sample Results: Metals
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC10-1	10/02/08	0 - 0.5	N	ND (2) *	3.7	93	ND (1) *	ND (1)	ND (0.401)	6.6	2.7	4.9	9.2	ND (0.1) *	ND (1)	5.5	ND (1)	ND (1)	ND (2) *	13	20
	10/02/08	2 - 3	N	ND (2) *	4.2	81	ND (1) *	ND (1)	ND (0.405)	7.4	3	5.6	5.8	ND (0.1) *	ND (1)	6.3	ND (1)	ND (1)	ND (2) *	16	21
	10/02/08	5 - 6	N	ND (2) *	4.9	82	ND (1) *	ND (1)	ND (0.407)	7.5	3.2	5.8	5.4	ND (0.1) *	ND (1)	6.4	ND (1)	ND (1)	ND (2) *	17	20
	10/02/08	9 - 10	N	ND (2) *	4.7	110	ND (1) *	ND (1)	ND (0.406)	6.8	3	5.7	4.8	ND (0.1) *	ND (1)	6.2	ND (1)	ND (1)	ND (2) *	15	21
AOC10-10	01/22/16	0 - 1	N	ND (2.1) *	3.1	100	ND (1) *	ND (1)	0.45	36	6.2	15	4.7	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	23	63
	01/22/16	2 - 3	N	ND (2.2) *	2.6	100	ND (1.1) *	ND (1.1) *	ND (0.22)	27	9	13	2	ND (0.11) *	ND (1.1)	22	ND (1.1)	ND (1.1)	ND (2.2) *	38	41
	01/22/16	5 - 6	N	ND (2.1) *	3.2	120	ND (1.1) *	ND (1.1) *	0.35	34	11	13	2.1	ND (0.11) *	ND (1.1)	28	ND (1.1)	ND (1.1)	ND (2.1) *	43	44
	01/22/16	9 - 10	N	ND (2.2) *	3.4	100	ND (1.1) *	ND (1.1) *	0.35	32	9.5	11	2.6	ND (0.11) *	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.2) *	42	43
	01/22/16	9 - 10	FD	ND (2.2) *	3.1	85	ND (1.1) *	ND (1.1) *	0.39	31	9.2	11	2.4	ND (0.11) *	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.2) *	39	42
AOC10-11	01/22/16	0 - 1	N	ND (2.1) *	3.3	85	ND (1) *	ND (1)	0.87	31	5.8 J	9.1	2.7	ND (0.1) *	ND (1)	14 J	ND (1)	ND (1)	ND (2.1) *	24 J	40
	01/22/16	0 - 1	FD	ND (2.1) *	3.4	86	ND (1) *	ND (1)	0.44	27	8.6 J	14	2.4	ND (0.1) *	ND (1)	18 J	ND (1)	ND (1)	ND (2.1) *	31 J	45
	01/22/16	2 - 3	N	ND (2.1) J*	2.7	110	ND (1) *	ND (1)	0.9	45	7.3	13	2.6	ND (0.1) *	ND (1)	19	ND (1) J	ND (1)	ND (2.1) J*	30	44
	01/22/16	5 - 6	N	ND (2.1) *	2.4	110	ND (1) *	ND (1)	1.6	73	9.4	31	2.5	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2.1) *	35	74
	01/22/16	9 - 10	N	ND (2) *	2.4	190	ND (1) *	ND (1)	0.72	42	10	19	2.4	ND (0.1) *	ND (1)	22	ND (1)	ND (1)	ND (2) *	36	160
AOC10-12	01/22/16	0 - 0.5	N	ND (2.1) *	4.3	89	ND (1) *	ND (1)	13	460	9.8	19	12	ND (0.11) *	ND (1)	21	ND (1)	ND (1)	ND (2.1) *	36	56
	01/22/16	2 - 3	N	ND (2.1) *	8.9	63	ND (1.1) *	ND (1.1) *	0.3	25	4.6	9	3.6	ND (0.1) *	1.4	11	ND (1.1)	ND (1.1)	ND (2.1) *	38	34
	01/22/16	5 - 6	N	ND (2.1) *	3	200	ND (1) *	ND (1)	5	130	8.4	11	6	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	31	70
	01/22/16	9 - 10	N	ND (2.1) *	4.4	120	ND (1) *	ND (1)	0.66	37	9.6	16	2.5	ND (0.11) *	ND (1)	22	ND (1)	ND (1)	ND (2.1) *	34	47
AOC10-13	12/03/15	0 - 1	N	ND (2.1) *	4.3	130	ND (1.1) *	ND (1.1) *	ND (0.21)	14	5.3	13	9.8	ND (0.11) *	1.4	12	ND (1.1)	ND (1.1)	ND (2.1) *	22	39
	12/03/15	0 - 1	FD	ND (2.1) *	4.5	130	ND (1.1) *	ND (1.1) *	ND (0.21)	16	5.7	14	10	ND (0.11) *	1.4	14	1.1	ND (1.1)	ND (2.1) *	23	41
AOC10-14	12/03/15	0 - 1	N	ND (2.1) *	6.3	380	ND (1) *	ND (1)	ND (0.21)	11	4.1	13	5.9	ND (0.1) *	1.3	9.1	9.1	ND (1)	ND (2.1) *	21	29
AOC10-15	12/15/15	0 - 1	N	ND (2) *	5.8	150	ND (1) *	ND (1)	2.6	67	6.1	23	21	ND (0.1) *	14	11	ND (1)	ND (1)	ND (2) *	24	98
	12/15/15	0 - 1	FD	ND (2) *	5.4	150	ND (1) *	ND (1)	2.6	70	5.9	27	20	ND (0.1) *	14	10	ND (1)	ND (1)	ND (2) *	22	110
	12/15/15	2 - 3	N	ND (2) *	4.7	210	ND (1) *	ND (1)	1.4	41	7.2	22	17 J	ND (0.1) *	8.2	14	ND (1) J	ND (1) J	ND (2) J*	26	70 J
	12/15/15	5 - 6	N	ND (2.1) *	4.4	320	ND (1) *	ND (1)	1.1	33	6.3	14	7.6	ND (0.1) *	4.2	15	ND (1)	ND (1)	ND (2.1) *	26	100
	12/15/15	9 - 10	N	ND (2.1) *	4.8	78	ND (1) *	ND (1)	ND (0.21)	17	8.1	11	1.5	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	30	44
AOC10-16	12/15/15	0 - 1	N	ND (2) *	3	69	ND (1) *	ND (1)	0.59	21	7.3	8.9	5.9	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	26	40
	12/15/15	2 - 3	N	ND (2.1) *	2.8	44	ND (1) *	ND (1)	0.24	21	7	9.7	2.5	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	27	44
	12/15/15	5 - 6	N	ND (2.1) *	3.1	170	ND (1) *	ND (1)	0.48	21	7.2	12	3.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	30	40
	12/15/15	9 - 10	N	ND (2) *	2.9	59	ND (1) *	ND (1)	ND (0.2)	14	6.6	9.4	2.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	28	38
AOC10-17	12/03/15	0 - 1	N	ND (2.1) *	3.8	110	ND (1) *	ND (1)	ND (0.21)	9.7	4.6	11	9.9	ND (0.1) *	7.8	10	1.9	ND (1)	ND (2.1) *	16	32
AOC10-18	12/06/15	0 - 1	N	ND (2) *	2.3	100	ND (1) *	ND (1)	ND (0.2)	5.6	2.3	2.8	1.9	ND (0.1) *	ND (1)	3.6	ND (1)	ND (1)	ND (2) *	14	13
	12/06/15	2 - 3	N	ND (2) *	2.2	160	ND (1) *	ND (1)	ND (0.2)	5.7	2.5	4.1	1.9	ND (0.1) *	ND (1)	4.2	ND (1)	ND (1)	ND (2) *	15	13
AOC10-19	02/24/16	0 - 1	N	ND (2) J*	4.2	120	ND (1) *	ND (1)	ND (0.2)	27	8.4	14	6.7 J	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	34	48
	02/24/16	2 - 3	N	ND (2.1) *	5	120	ND (1) *	ND (1)	0.3	34 J	10	18	5.8	ND (0.1) *	ND (1)	22	ND (1)	ND (1)	ND (2.1) *	40	55
	02/24/16	2 - 3	FD	ND (2.1) *	4.9	110	ND (1) *	ND (1)	ND (0.21)	27 J	9.1	17	5.8	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2.1) *	36	52
	02/24/16	5 - 6	N	ND (2.1) *	5.8	130	ND (1) *	ND (1)	ND (0.21)	27	9.4	17	3.8	ND (0.11) *	ND (1)	19	ND (1)	ND (1)	ND (2.1) *	37	47

TABLE 3-6a

Sample Results: Metals
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sampl e Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC10-2	10/02/08	0 - 0.5	N	ND (2) *	3.4	93	ND (1) *	ND (1)	ND (0.402)	4.9	2.3	4.1	5.1	ND (0.1) *	ND (1)	4.3	ND (1)	ND (1)	ND (2) *	12	14
	10/02/08	2 - 3	N	ND (2.1) *	5.5	370	ND (1) *	ND (1)	ND (0.417)	17	6.4	9.4	3.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	33	38
	10/02/08	5 - 6	N	ND (2.1) *	9.1	120	ND (2.1) *	ND (1)	ND (0.415)	19	7.4	9.5	4.2	ND (0.1) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.1) *	36	40
	10/02/08	7 - 8	N	ND (2.1) *	6	110	ND (1) *	ND (1)	ND (0.412)	17	6.3	9	3.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	30	32
AOC10-20	02/17/16	0 - 0.5	N	15	3.5	120	ND (1) *	ND (1)	2,700	2,800	3.4	11	6.1	ND (0.1) *	ND (1)	5.8	ND (1)	ND (1)	ND (2) *	14	38
	02/25/16	2 - 3	N	ND (2) *	3.3	100	ND (1) *	ND (1)	12	28	3.2	5	2.8	ND (0.1) *	ND (1)	5.8	ND (1)	ND (1)	ND (2) *	18	16
AOC10-21	02/25/16	0 - 0.5	N	ND (2) *	9.7	320	ND (1) *	7.4	1.4	270	8.5	3,100	920	35	9.4	28	ND (1)	ND (1)	ND (2) *	23	360
	02/25/16	2 - 3	N	ND (2) *	3	85	ND (1) *	ND (1)	0.2	8.1	3.2	5	2.9	ND (0.099) *	ND (1)	5.4	ND (1)	ND (1)	ND (2) *	16	16
AOC10-22	02/17/16	0 - 0.5	N	ND (2) *	4.1	140	ND (1) *	ND (1)	ND (0.2)	35	8.1	14	12	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	38	50
	02/17/16	1 - 2	N	ND (2.1) *	17	77	ND (1.1) *	4.4	0.91	85	36	200	38	ND (0.11) *	2.7	51	ND (1.1)	ND (1.1)	ND (2.1) *	19	39
	02/17/16	2 - 3	N	ND (2) *	5.5	140	ND (1) *	1.2	0.37	35	13	42	17	ND (0.1) *	ND (1)	25	ND (1)	ND (1)	ND (2) *	34	35
	02/17/16	5 - 6	N	ND (2) *	4.1	130	ND (1) *	ND (1)	ND (0.2)	8.6	3.4	5.1	3.4	ND (0.1) *	ND (1)	5.4	ND (1)	ND (1)	ND (2) *	19	18
AOC10-23	02/25/16	0 - 1	N	ND (2) *	11	57	ND (1) *	1.8	1.8	72	27	140	30	0.24	ND (1)	34	ND (1)	ND (1)	ND (2) *	12	26
	02/25/16	1 - 2	N	ND (2) *	5.1	59	ND (1) *	ND (1)	2.6	130	5.7	22	22	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	16	56
	02/25/16	2 - 3	N	ND (2) *	3	60	ND (1) *	ND (1)	ND (0.2)	5.5	2.5	4.2	2.2	ND (0.1) *	ND (1)	4.4	ND (1)	ND (1)	ND (2) *	13	11
AOC10-25	01/08/17	0 - 0.5	N	ND (2) *	3.1	120 J	ND (1) J*	ND (1)	ND (0.2)	15	5.9 J	8	7.9 J	ND (0.1) *	ND (1)	11 J	ND (1) J	ND (1)	ND (2) J*	23	32
	01/08/17	0 - 0.5	FD	ND (2) *	3.7	150 J	ND (1) J*	ND (1)	ND (0.2)	18	7.3 J	9.5	11 J	ND (0.1) *	ND (1)	14 J	ND (1) J	ND (1)	ND (2) J*	27	38
	01/08/17	2 - 3	N	ND (2) *	4.1	140 J	ND (1) J*	ND (1)	ND (0.2)	31	9.9	11	2.1 J	ND (0.1) *	1.4	21	ND (1) J	ND (1)	ND (2) J*	36 J	41
	01/08/17	5 - 6	N	ND (2.1) *	4.8	160	ND (1) *	ND (1)	ND (0.2)	25	8.2	11	1.5	ND (0.1) *	ND (1)	16	ND (1) J	ND (1)	ND (2.1) *	30	45
	01/08/17	9 - 10	N	ND (2) *	5.6	130	ND (1) *	ND (1)	ND (0.2)	26	10	13	1.5	ND (0.1) *	ND (1)	15	ND (1) J	ND (1)	ND (2) *	34	42
AOC10-26	02/21/17 ⊖	2.5 - 2.7	N	3.5	6.6	200	ND (1.4) *	1.5	9.5	340	6.5	40	18	0.15	ND (1.4) *	13	ND (1.4) J	ND (1.4)	ND (2.8) J*	31	110
AOC10-3	09/19/08	0 - 0.5	N	ND (2) J*	3.1	160	ND (2) *	ND (1)	1.91	62	4.6	14	7.8	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4) *	23	40
	09/19/08	0 - 0.5	FD	ND (2) *	2.6	150	ND (2) *	ND (1)	1.7	64	4.5	13	7.7	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4) *	22	41
	09/19/08	2 - 3	N	ND (2.1) *	3.3	160	ND (5.1) *	ND (1)	ND (0.412)	43	10	14	ND (5.1)	ND (0.1) *	ND (5.1) *	26	ND (1)	ND (5.1)	ND (10) *	43	47
	09/19/08	5 - 6	N	ND (2.1) *	5.4	220	ND (5.1) *	ND (1)	0.705	37	9.9	16	2.9	ND (0.1) *	ND (5.1) *	25	ND (1)	ND (5.1)	ND (10) *	46	61
	09/19/08	9 - 10	N	ND (2.1) *	7.4	110	ND (1) *	ND (1)	ND (0.412)	28	9	12	2.8	ND (0.1) J*	ND (1)	20	ND (1)	ND (1)	ND (2.1) *	33	50
AOC10-4	09/19/08	0 - 0.5	N	ND (2) *	3.5	110	ND (2) *	ND (1)	0.55	33	6.5	14	11	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4) *	32	52
	09/19/08	2 - 3	N	ND (2) *	2.5	130	ND (2) *	ND (1)	ND (0.409)	26	7.1	16	4.4	ND (0.1) *	ND (2) *	19	ND (1)	ND (2)	ND (4.1) *	33	38
	09/19/08	5 - 6	N	ND (2.1) *	5.9	75	ND (5.2) *	ND (1)	ND (0.418)	27	10	16	3	ND (0.11) *	ND (5.2) *	20	ND (1)	ND (5.2) *	ND (10) *	40	63
	09/19/08	9 - 10	N	ND (2.1) *	7.7	48	ND (1) *	ND (1)	ND (0.413)	18	7.9	12	2.7	ND (0.1) J*	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	27	48
AOC10-5	09/19/08	0 - 0.5	N	ND (2) *	9.6	500	ND (5.1) *	ND (1)	1.01	39	9.6	27	27	ND (0.1) *	ND (5.1) *	23	ND (1)	ND (5.1)	ND (10) *	52	97
	09/19/08	2 - 3	N	ND (2.1) *	8.2	380	ND (5.1) *	ND (1)	0.48	30	8.3	21	34	ND (0.1) *	ND (5.1) *	20	ND (1)	ND (5.1)	ND (10) *	43	77
	09/19/08	5 - 6	N	ND (4.1) *	12	1,100	ND (5.1) *	ND (2) *	ND (0.407)	19	8.8	40	6.7	ND (0.1) *	ND (5.1) *	16	ND (2) *	ND (5.1)	ND (10) *	36	80
	09/19/08	5 - 6	FD	ND (4.1) *	12	1,300	ND (5.1) *	ND (2) *	ND (0.407)	18	8.5	41	7.3	ND (0.1) *	ND (5.1) *	14	ND (2) *	ND (5.1)	ND (10) *	37	79
AOC10-6	09/20/08	0 - 0.5	N	ND (2) J*	7	220 J	ND (2) *	ND (1)	ND (0.402)	24	7.2	11	26	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4) *	32	58
	09/20/08	2 - 3	N	ND (2) *	4.2	220	ND (1) *	ND (1)	ND (0.404)	23	7	9.5	4.1	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	34	45

TABLE 3-6a

Sample Results: Metals
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC10-7	09/20/08	0 - 0.5	N	ND (2) *	7.6	250	ND (1) *	ND (1)	ND (0.414)	22	6.7	12	8.6	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	29	54
	09/20/08	2 - 3	N	ND (2) *	8	210	ND (1) *	ND (1)	ND (0.406)	27	7.9	12	8.1	ND (0.1) *	1.1	14	ND (1)	ND (1)	ND (2) *	33	58
	09/20/08	5 - 6	N	ND (2) *	9.6	270	ND (2) *	ND (1)	ND (0.407)	33	8.7	13	4.4	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4.1) *	38	58
AOC10-8	08/22/08	0 - 0.5	N	ND (4) *	8.6	210	ND (2) *	ND (2) *	ND (0.402)	16	6.4	12	15 J	ND (0.1) *	ND (2) *	14	ND (2) *	ND (2)	ND (4) *	31	87
	08/22/08	0 - 0.5	FD	ND (4) *	8.2	180	ND (2) *	ND (2) *	ND (0.416)	18	7	12	12 J	ND (0.1) *	ND (2) *	14	ND (2) *	ND (2)	ND (4) *	33	75
AOC10-9	12/07/15	0 - 1	N	ND (2) *	9.1	82	ND (1) *	ND (1)	ND (0.2)	19	6.9	12	3.2	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	29	41
	12/07/15	2 - 3	N	ND (2.1) *	4.8	140	ND (1) *	ND (1)	ND (0.2)	16	6.6	10	2.3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	26	49
AOC10a-1	10/17/08	0 - 0.5	N	ND (2.1) J*	8.8	140	ND (1.1) *	ND (1.1) *	8.25	80	5.7	270 J	200 J	0.64	19	28	ND (1.1)	ND (1.1)	ND (2.1) *	17	1,000 J
AOC10a-2	01/13/16	0 - 1	N	ND (2.1) *	3.8	65	ND (1.1) *	ND (1.1) *	ND (0.21)	13	4.2	11	9.4	0.12	ND (1.1)	7.7	ND (1.1)	ND (1.1)	ND (2.1) *	18	36
	01/13/16	2 - 3	N	ND (2.1) *	3.1	77	ND (1) *	ND (1)	ND (0.21)	3.6	2.3	2.9	2.1	ND (0.1) *	ND (1)	3.4	ND (1)	ND (1)	ND (2.1) *	9.6	10
	01/13/16	5 - 6	N	ND (2.1) *	2.9	65	ND (1) *	ND (1)	ND (0.21)	3.7	1.9	2.6	1.9	ND (0.1) *	ND (1)	2.7	ND (1)	ND (1)	ND (2.1) *	9.3	9.5
	01/13/16	9 - 10	N	ND (2.1) *	2.9	290	ND (1.1) *	ND (1.1) *	ND (0.21)	4.6	2.2	3.6	2.4	ND (0.11) *	ND (1.1)	3.9	ND (1.1)	ND (1.1)	ND (2.1) *	9.9	12
AOC10a-3	01/13/16	0 - 1	N	ND (2.1) *	3.7	150	ND (1) *	ND (1)	5.3	100	7.6	27	4.2	0.13	ND (1)	19	ND (1)	ND (1)	ND (2.1) *	27	35
	01/13/16	2 - 3	N	ND (2.1) *	4.7	140	ND (1) *	ND (1)	1.3	68	5.7	25	22	0.21	1.4	16	ND (1)	ND (1)	ND (2.1) *	22	70
	01/13/16	5 - 6	N	ND (2.1) *	3.6	82	ND (1) *	ND (1)	ND (0.21)	45	9	12	1.7	0.19	ND (1)	28	ND (1)	ND (1)	ND (2.1) *	40	34
	01/13/16	9 - 10	N	ND (2.1) *	3.2	150	ND (1) *	ND (1)	ND (0.21)	39	10	31	2.3	0.16	ND (1)	32	ND (1)	ND (1)	ND (2.1) *	42	38
AOC10a-4	01/08/17	0 - 0.5	N	ND (2.1) *	3.6	140	ND (1.1) *	ND (1.1) *	---	33	10	30	4	ND (0.11) *	ND (1.1)	25	ND (1.1) J	ND (1.1)	ND (2.1) J*	34	41
	01/08/17	2 - 3	N	ND (2) *	3.8	130	ND (1) *	ND (1)	---	11	4.1	6.3	2.6	ND (0.1) *	ND (1)	7.7	ND (1) J	ND (1)	ND (2) J*	19	20
	01/08/17	5 - 6	N	ND (2) *	3.5	130	ND (1) *	ND (1)	---	11	3.9	6.9	2.5	ND (0.1) *	ND (1)	7.9	ND (1) J	ND (1)	ND (2) J*	17	19
	01/08/17	9 - 10	N	ND (2.1) *	2.2	310	ND (1) *	1.1	---	47	12	14	2.1	ND (0.1) *	ND (1)	35	ND (1) J	ND (1)	ND (2.1) J*	43	41
AOC10b-1	09/30/08	0 - 0.5	N	ND (2) *	3.6	130	ND (1) *	ND (1)	0.559	24	4.8	9.8	8.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	25	38
	09/30/08	2 - 3	N	ND (2) *	3.1	120	ND (1) *	ND (1)	1.39	63	4.8	28	8.4 J	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	20	110 J
	09/30/08	2 - 3	FD	ND (2) *	2.9	100	ND (1) *	ND (1)	1.39	61	4.2	27	12 J	ND (0.1) *	1.5	10	ND (1)	ND (1)	ND (2) *	18	160 J
	09/30/08	5 - 6	N	ND (2) *	3.1	110	ND (1) *	ND (1)	0.425	20	3.9	8	4.3	ND (0.1) *	ND (1)	8.4	ND (1)	ND (1)	ND (2) *	16	39
	09/30/08	9 - 10	N	ND (2) *	4.7	120	ND (2) *	ND (1)	ND (0.407)	29	6.2	10	3.7	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4) *	24	29
AOC10b-2	09/30/08	0 - 0.5	N	ND (2) *	3	89	ND (1) *	ND (1)	0.434	29	3.8	11	8.2	ND (0.1) *	1.1	8.9	ND (1)	ND (1)	ND (2) *	17	40
	09/30/08	2 - 3	N	ND (2) *	2.9	100	ND (1) *	ND (1)	1.05	47	4.3	15	5.2	ND (0.1) *	1.1	10	ND (1)	ND (1)	ND (2) *	17	44
	09/30/08	5 - 6	N	ND (2) *	4.1	100	ND (1) *	ND (1)	0.453	29	5.3	8.8	4.2	ND (0.1) *	1	14	ND (1)	ND (1)	ND (2) *	22	27
	09/30/08	9 - 10	N	ND (2) *	5.7	120	ND (2) *	ND (1)	0.759	39	8.2	15	3.8	ND (0.1) *	ND (2) *	22	ND (1)	ND (2)	ND (4) *	29	38
AOC10b-3	09/30/08	0 - 0.5	N	ND (2) *	ND (1)	120	ND (1) *	ND (1)	27.7	820	3.6	90	24	ND (0.1) *	1.5	9.2	ND (1)	ND (1)	ND (2) *	17	240
	10/01/08	2 - 3	N	ND (2) *	2.9	93	ND (1) *	ND (1)	1.82	90	5.8	23	5	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	22	59
	10/01/08	5 - 6	N	ND (2.1) *	5	110	ND (2.1) *	ND (1)	0.429	38	9.2	14	3.8	ND (0.1) *	ND (2.1) *	24	ND (1)	ND (2.1)	ND (4.1) *	33	40
	10/01/08	5 - 6	FD	ND (2.1) *	5	110	ND (2.1) *	ND (1)	ND (0.417)	36	10	16	3.6	ND (0.1) *	ND (2.1) *	25	ND (1)	ND (2.1)	ND (4.1) *	35	39
	10/01/08	9 - 10	N	ND (2.1) *	6.2	120	ND (2.1) *	ND (1)	ND (0.415)	36	11	13	3.5	ND (0.1) *	ND (2.1) *	26	ND (1)	ND (2.1)	ND (4.1) *	38	44
AOC10b-4	09/30/08	0 - 0.5	N	ND (2) *	3.4	76	ND (1) *	ND (1)	ND (0.401)	12	4	5.8	41	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	17	29
	09/30/08	2 - 3	N	ND (2) *	3.6	100	ND (1) *	ND (1)	ND (0.403)	14	4.7	6.7	10	ND (0.1) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	21	31
	09/30/08	5 - 6	N	ND (2) *	3.8	150	ND (1) *	ND (1)	ND (0.407)	20	6.7	8.9	3.4	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	30	35
	09/30/08	9 - 10	N	ND (2.1) *	4	85	ND (1) *	ND (1)	ND (0.415)	26	7.4	11	2.8	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	30	42

TABLE 3-6a

Sample Results: Metals
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC10c-1	10/01/08	0 - 0.5	N	ND (2) J*	4.2	110	ND (1) *	ND (1)	1.98	55	5.4	15	7.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	23	48
	10/01/08	2 - 3	N	ND (2) *	1.2	140	ND (1) *	ND (1)	27.3	490	5.6	41	18	ND (0.1) *	1.2	13	ND (1)	ND (1)	ND (2) *	21	76
	10/01/08	5 - 6	N	ND (2) *	3.4	110	ND (2) *	ND (1)	4.78	220	8.2	17	5.4	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4.1) *	28	42
	10/01/08	9 - 10	N	ND (2) *	4	180	ND (1) *	ND (1)	1.37	63	9.2	14	3.4	ND (0.1) *	1	23	ND (1)	ND (1)	ND (2) *	33	39
AOC10c-2	10/01/08	0 - 0.5	N	ND (2) *	5.9	130	ND (2) *	ND (1)	1.25	51	5.8	19	12	ND (0.1) *	ND (2) *	13	ND (1)	ND (2)	ND (4) *	24	61
	10/01/08	2 - 3	N	ND (2) *	4.1	150	ND (1) *	ND (1)	3.77	190	5.6	37	17	ND (0.1) *	2.2	13	ND (1)	ND (1)	ND (2) *	24	78
	10/01/08	2 - 3	FD	ND (2) *	4.1	150	ND (1) *	ND (1)	3.8	180	5.4	34	16	ND (0.1) *	1.9	13	ND (1)	ND (1)	ND (2) *	24	75
	10/01/08	5 - 6	N	ND (2) *	3.4	150	ND (1) *	ND (1)	1.92	110	8.4	24	7	ND (0.1) *	1.9	19	ND (1)	ND (1)	ND (2) *	31	51
	10/01/08	9 - 10	N	ND (2) *	4.5	86	ND (1) *	ND (1)	0.605	32	11	13	2.7	ND (0.1) *	ND (1)	22	ND (1)	ND (1)	ND (2) *	44	50
AOC10c-3	10/02/08	0 - 0.5	N	ND (2) *	9.4	270	ND (2) *	ND (1)	2.56	110	8	42	32	ND (0.1) *	ND (2) *	19	ND (1)	ND (2)	ND (4.1) *	36	140
	10/02/08	2 - 3	N	ND (2.1) *	3.6	230	ND (2.1) *	ND (1)	9.27	690	7	60	31	ND (0.11) *	ND (2.1) *	16	ND (1)	ND (2.1)	ND (4.1) *	29	140
	10/02/08	2 - 3	FD	ND (2.1) *	3.5	220	ND (2.1) *	ND (1)	7.97	660	6.9	60	26	ND (0.1) *	ND (2.1) *	16	ND (1)	ND (2.1)	ND (4.1) *	28	140
	10/02/08	5 - 6	N	ND (2) *	3.9	140	ND (1) *	ND (1)	0.512	29	7.8	9	4.5	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	28	36
	10/02/08	9 - 10	N	ND (2.1) *	4.4	64	ND (1) *	ND (1)	ND (0.412)	22	7.8	11	2.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	31	41
AOC10c-4	10/01/08	0 - 0.5	N	ND (2.1) *	11	310	ND (2.1) *	ND (1)	2.66	120	8.8	46	36	ND (0.1) *	ND (2.1) *	21	ND (1)	ND (2.1)	ND (4.1) *	42	150
	10/01/08	2 - 3	N	ND (2) *	5.9	170	ND (2) *	ND (1)	2.11	90	9.9	19	8.9	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4.1) *	31	52
	10/01/08	5 - 6	N	ND (2) *	4.6	120	ND (1) *	ND (1)	2.84	27	9.1	14	2.6	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	35	47
	10/01/08	9 - 10	N	ND (2.1) *	7.3	200	ND (2.1) *	ND (1)	0.436	92	5.4	25	13	ND (0.1) *	ND (2.1) *	13	ND (1)	ND (2.1)	ND (4.1) *	25	74
AOC10c-5	10/01/08	0 - 0.5	N	ND (2) *	6.6	170	ND (2) *	ND (1)	2.49	81	6.3	29	15	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4) *	27	80
	10/01/08	2 - 3	N	ND (2.1) *	ND (1)	230	ND (2.1) *	ND (1)	16.4	1,500	6.7	110	47	ND (0.1) *	2.9	16	ND (1)	ND (2.1)	ND (4.1) *	27	170
	10/01/08	5 - 6	N	ND (2.1) *	3.7	100	ND (2.1) *	ND (1)	1.48	82	8.6	12	4	ND (0.1) *	ND (2.1) *	19	ND (1)	ND (2.1)	ND (4.1) *	31	44
	10/01/08	9 - 10	N	ND (2) *	4.5	130	ND (1) *	ND (1)	0.423	47	9.1	15	3	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2) *	34	46
AOC10c-6	01/21/16	14 - 15	N	---	---	---	---	---	0.54	40	---	---	---	---	---	---	---	---	---	---	---
	01/22/16	19 - 20	N	---	---	---	---	---	ND (0.21)	31	---	---	---	---	---	---	---	---	---	---	---
	01/22/16	29 - 30	N	---	---	---	---	---	ND (0.23)	39	---	---	---	---	---	---	---	---	---	---	---
	01/22/16	49 - 50	N	---	---	---	---	---	ND (0.26)	33	---	---	---	---	---	---	---	---	---	---	---
	01/22/16	49 - 50	FD	---	---	---	---	---	ND (0.22)	32	---	---	---	---	---	---	---	---	---	---	---
	01/22/16	59 - 60	N	---	---	---	---	---	ND (0.21)	32	---	---	---	---	---	---	---	---	---	---	---
AOC10d-1	09/18/08	0 - 0.5	N	ND (2) J*	3.4	120	ND (2) *	ND (1)	0.644	49	6.8	16	8.8	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4) *	31	58
	09/18/08	2 - 3	N	ND (2) *	3.9	120	ND (2) *	ND (1)	2.86	150	7.1	31	6.8	ND (0.1) *	ND (2) *	17	ND (1)	ND (2)	ND (4.1) *	35	76
	09/18/08	5 - 6	N	ND (2.1) *	6.9	200	ND (5.2) *	ND (1)	1.06	66	11	23	5.2	ND (0.11) *	ND (5.2) *	27	ND (1)	ND (5.2) *	ND (10) *	45	80
	09/18/08	5 - 6	FD	ND (2.1) *	7.1	210	ND (5.2) *	ND (1)	0.703	64	11	23	5.3	ND (0.1) *	ND (5.2) *	26	ND (1)	ND (5.2) *	ND (10) *	46	74
	09/18/08	9 - 10	N	ND (4.1) *	9.8	140	ND (2.1) *	ND (2.1) *	ND (0.414)	23	9.4	12	3.5	ND (0.1) J*	ND (2.1) *	17	ND (2.1) *	ND (2.1)	ND (4.1) *	31	58
AOC10d-2	09/17/08	0 - 0.5	N	ND (2) *	4.2	180	ND (2) *	ND (1)	ND (0.403)	22	6.2	17	21	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4) *	32	61
	09/17/08	2 - 3	N	ND (2) *	3.3	180	ND (2) *	ND (1)	1.16	40	5.4	14	16	ND (0.1) *	ND (2) *	14	ND (1)	ND (2)	ND (4.1) *	30	54
	09/17/08	5 - 6	N	ND (2) *	6.6	210	ND (5.1) *	ND (1)	0.597	33	10	16	6.2	ND (0.1) *	ND (5.1) *	21	ND (1)	ND (5.1)	ND (10) *	45	70
	09/17/08	9 - 10	N	ND (2) *	7.2	150	ND (5.1) *	ND (1)	ND (0.406)	22	8.5	16	3.2	ND (0.1) J*	ND (5.1) *	16	ND (1)	ND (5.1)	ND (10) *	38	73

TABLE 3-6a

Sample Results: Metals
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC10d-3	09/17/08	0 - 0.5	N	ND (2) *	3.6	120	ND (2) *	ND (1)	ND (0.406)	20	5.9	12	22	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4) *	29	52
	09/18/08	2 - 3	N	ND (2) *	3.4	270	ND (2) *	ND (1)	1.91	64	6.3	18	21	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4.1) *	33	61
	09/18/08	5 - 6	N	ND (2) *	7.3	280	ND (5.1) *	ND (1)	ND (0.407)	30	10	18	3.3	ND (0.1) *	ND (5.1) *	23	ND (1)	ND (5.1)	ND (10) *	43	60
	09/18/08	5 - 6	FD	ND (2) *	6	330	ND (5.1) *	ND (1)	ND (0.407)	31	10	18	5.1	ND (0.1) *	ND (5.1) *	23	ND (1)	ND (5.1)	ND (10) *	42	59
	09/18/08	9 - 10	N	ND (4.1) *	8.2	150	ND (2) *	ND (2) *	ND (0.408)	21	8.5	11	3.6	ND (0.1) J*	ND (2) *	15	ND (2) *	ND (2)	ND (4.1) *	28	56
AOC10d-4	09/18/08	0 - 0.5	N	ND (2.1) *	9.2	340	ND (5.2) *	ND (1)	0.92	29	8.3	25	25	ND (0.1) *	ND (5.2) *	21	ND (1)	ND (5.2) *	ND (10) *	42	85
	09/18/08	2 - 3	N	ND (2.1) *	5.4	260	ND (2.1) *	ND (1.1) *	3.93	130	6.7	27	26	ND (0.11) *	ND (2.1) *	17	ND (1.1)	ND (2.1)	ND (4.2) *	35	81
	09/18/08	5 - 6	N	ND (2) *	3.6	220	ND (2) *	ND (1)	ND (0.415)	66	6.5	21	17	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4.1) *	31	64
	09/18/08	9 - 10	N	ND (2) *	6.9	220	ND (5.1) *	ND (1)	ND (0.41)	32	11	16	5.2	ND (0.1) J*	ND (5.1) *	24	ND (1)	ND (5.1)	ND (10) *	43	68
AOC10d-9	12/15/15	0 - 1	N	ND (2) *	2.8	120	ND (1) *	ND (1)	ND (0.2)	20	7.3	8.9	20	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	28	44
	12/15/15	2 - 3	N	ND (2.1) *	5.3	130	ND (1) *	ND (1)	ND (0.21)	20	8.4	13	2.4	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	31	48
	12/15/15	5 - 6	N	ND (2.1) *	5.2	190	ND (1.1) *	ND (1.1) *	ND (0.21)	27	8.8	17	2.3	ND (0.1) *	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1) *	31	49
	12/15/15	9 - 10	N	ND (2.1) *	4.9	150	ND (1) *	ND (1)	ND (0.21)	24	9.1	17	2.6	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2.1) *	35	54
AOC10-OS1	04/06/11	11 - 11.5	N	---	---	---	---	---	ND (0.4) J	43	---	---	---	---	5.9	---	---	---	---	---	---
AOC10-OS2	04/06/11	5.5 - 6	N	---	---	---	---	---	0.78 J	44	---	---	---	---	5.8	---	---	---	---	---	---
AOC10-OS4	04/06/11	6.5 - 7	N	---	---	---	---	---	ND (0.41) J	170	---	---	---	---	13	---	---	---	---	---	---
AOC10-XRF-01	08/25/08	0 - 0.5	N	---	---	---	---	---	ND (0.404)	9.2	---	---	---	---	---	---	---	---	---	---	---
AOC10-XRF-02	08/25/08	0 - 0.5	N	---	---	---	---	---	ND (0.404)	11	---	---	---	---	---	---	---	---	---	---	---
AOC10-XRF-03	08/25/08	0 - 0.5	N	---	---	---	---	---	ND (0.405)	10	---	---	---	---	---	---	---	---	---	---	---
AOC10-XRF-10	09/21/08	3 - 4	N	---	---	---	---	---	ND (0.416)	26	---	---	---	---	---	---	---	---	---	---	---
DTSC-AOC10d-1	01/18/08 ϴ	0	N	ND (4.42) *	8.28	163	ND (4.41) *	ND (8.83) *	31.5	652	ND (4.41)	137	14.3	ND (0.0193) *	ND (2.5) *	ND (4.41)	ND (4.42) *	ND (4.42)	ND (8.83) *	39.5	134
DTSC-AOC10d-2	01/18/08 ϴ	0	N	ND (4.89) *	7.36	595	ND (4.89) *	ND (9.78) *	6.03	243	ND (4.89)	66.5	13.1	ND (0.0192) *	ND (4.89) *	ND (4.89)	ND (4.89) *	ND (4.89)	ND (9.78) *	36.2	147
DTSC-AOC10d-3	01/18/08 ϴ	0	N	ND (4.65) *	5.87	264	ND (4.65) *	ND (9.3) *	4.38	224	ND (4.65)	46.5	12	ND (0.0198) *	ND (4.65) *	ND (4.65)	ND (4.65) *	ND (4.65)	ND (9.3) *	34.5	197
MW-57BR	01/14/09	3 - 4	N	ND (2) *	9.2	270	ND (2) *	ND (1)	ND (0.16)	26	7.8	11	6.7	ND (0.1) *	ND (2) *	17	ND (1)	ND (2)	ND (4.1) *	34	52
	01/14/09	8 - 9	N	ND (2.1) *	8	85	ND (1) *	ND (1)	ND (0.17)	20	7.9	11	2.7	ND (0.1) *	1.3	16	ND (1)	ND (1)	ND (2.1) *	28	46
	01/14/09	8 - 9	FD	ND (2.1) *	8.4	85	ND (1) *	ND (1)	ND (0.16)	22	8	11	2.9	ND (0.1) *	1.3	16	ND (1)	ND (1)	ND (2.1) *	27	48
	01/14/09	18 - 19	N	ND (4.1) *	9.9	240	ND (2.1) *	ND (2.1) *	ND (0.16)	25	10	12	4.3	ND (0.1) *	3	16	ND (2.1) *	ND (2.1)	ND (4.1) *	31	68
MW-58BR_S	01/29/09	1.5 - 2	N	ND (2.1) J*	ND (2.1)	410	ND (2.1) *	ND (1.1) *	150	4,000	8.2	300	160	0.33	3.5	24	ND (1.1)	ND (2.1)	6.1	23	300
	01/29/09	19 - 20	N	ND (2.1) *	12	240	ND (2.1) *	ND (1.1) *	0.43	33	12	24	4	ND (0.11) *	ND (2.1) *	25	ND (1.1)	ND (2.1)	4.7	38	63
	01/29/09	29 - 30	N	ND (2.1) *	13	110	ND (2.1) *	ND (1.1) *	ND (0.17)	26	11	14	3.6	ND (0.11) *	ND (2.1) *	19	ND (1.1)	ND (2.1)	4.8	33	64
	01/29/09	39 - 40	N	ND (2.1) *	12	150	ND (2.1) *	ND (1.1) *	0.43	35	12	17	4.2	ND (0.11) *	ND (2.1) *	22	ND (1.1)	ND (2.1)	4.7	34	51
	01/29/09	49 - 50	N	ND (2.1) *	8.3	180	ND (1.1) *	ND (1.1) *	ND (0.17)	24	8.7	17	3.7	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	28	46
	01/29/09	59 - 60	N	ND (2.2) *	8.4	37	ND (1.1) *	ND (1.1) *	ND (0.18)	27	13	58	3.4	ND (0.11) *	ND (1.1)	22	ND (1.1)	ND (1.1)	ND (2.2) *	28	41
PA-06	11/09/15	0 - 1	N	ND (2) *	2.4	69	ND (1) *	ND (1)	0.89	30	8.1	15	5.2	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	23	74
PA-18	01/27/16	0 - 1	N	ND (2.1) *	5.2	130	ND (1) *	ND (1)	0.28	65	7.3	64	47	ND (0.1) *	1.4	22	ND (1)	ND (1)	ND (2.1) *	33	190
PA-19	01/27/16	0 - 1	N	ND (2.3) *	5.8	150	ND (1.1) *	ND (1.1) *	ND (0.46)	34	5.8	160	30	ND (0.12) *	9.8	15	ND (1.1)	ND (1.1)	ND (2.3) *	28	550
PA-20	01/27/16	0 - 1	N	ND (2.1) *	5.2	96	ND (1) *	ND (1)	0.82 J	33	5.5	11	23	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	27	84

TABLE 3-6a

Sample Results: Metals
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
PA-21	01/27/16	0 - 1	N	ND (2) *	5.5	96	ND (1) *	ND (1)	ND (0.2)	49	5.8	26	32	ND (0.1) *	1.2	12	ND (1)	ND (1)	ND (2) *	28	150
SD-01	01/13/16	0 - 0.5	N	ND (2.1) *	3	78 J	ND (1.1) *	ND (1.1) *	0.24	14	3.9	29	7.6	ND (0.1) *	ND (1.1)	7.8	ND (1.1) J	ND (1.1)	ND (2.1) *	16	190
	01/13/16	2 - 3	N	ND (2.2) *	5.2	210	ND (1.1) *	ND (1.1) *	ND (0.22)	36	11	14	3.2	ND (0.11) *	ND (1.1)	30	ND (1.1)	ND (1.1)	ND (2.2) *	43	41
	01/13/16	5 - 6	N	ND (2.2) *	4.1	100	ND (1.1) *	ND (1.1) *	ND (0.22)	49	11	15	2.5	ND (0.11) *	ND (1.1)	37	ND (1.1)	ND (1.1)	ND (2.2) *	44	43
	01/13/16	9 - 10	N	ND (2.1) *	2.9	100	ND (1.1) *	ND (1.1) *	ND (0.21)	40	11	12	1.9	ND (0.11) *	ND (1.1)	34	ND (1.1)	ND (1.1)	ND (2.1) *	46	40
SD-02	11/10/15	0 - 1	N	ND (2) *	3.2	100	ND (1) *	ND (1)	0.66	26	5.8	16	29	0.17 J	ND (1)	12	ND (1)	ND (1)	ND (2) *	28	48
	11/10/15	2 - 3	N	ND (2) *	5	590	ND (1) *	ND (1)	11	280	5.8	590	170	3.2	9.1	17	ND (1)	ND (1)	ND (2) *	26	300
SD-03	11/10/15	0 - 1	N	ND (2) *	4	91	ND (1) *	ND (1)	0.28	12	3.7	7.3	9.7	ND (0.099) *	ND (1)	8.6	ND (1)	ND (1)	ND (2) *	17	31
	11/10/15	2 - 3	N	ND (2) *	2.6	52	ND (1) *	ND (1)	ND (0.2)	6.4	2.3	3.4	2.5	ND (0.1) *	ND (1)	4.7	ND (1)	ND (1)	ND (2) *	11	13
SD-04	11/10/15	0 - 1	N	ND (2) J*	3	90 J	ND (1) *	ND (1)	ND (0.2)	10	4	5.1	2.7	ND (0.1) *	ND (1)	8.3	ND (1)	ND (1)	ND (2) *	21	22
	11/10/15	2 - 3	N	ND (2) *	2.9	83	ND (1) *	ND (1)	ND (0.2)	8	3.2	4.4	2.5	ND (0.1) *	ND (1)	5.9	ND (1)	ND (1)	ND (2) *	16	19
SD-05	11/10/15	0 - 1	N	ND (2) *	3.2	100 J	ND (1) *	ND (1)	ND (0.2)	13 J	3.3	9.2	13 J	ND (0.1) *	2.5	6.3 J	ND (1)	ND (1)	ND (2) *	17	46
	11/10/15	0 - 1	FD	ND (2) *	4.5	130 J	ND (1) *	ND (1)	ND (0.2)	19 J	3.9	10	37 J	ND (0.1) *	1.1	9.5 J	ND (1)	ND (1)	ND (2) *	19	42
	11/10/15	2 - 3	N	ND (2.1) *	3.8	110	ND (1) *	ND (1)	ND (0.21)	30	7.3	12	10	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2.1) *	33	41
SD-06	11/10/15	0 - 1	N	ND (2) *	3.3	82	ND (1) *	ND (1)	ND (0.2)	17	6.4	9.4	3.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	30	39
	11/10/15	2 - 3	N	ND (2.1) *	3.6	97	ND (1) *	ND (1)	ND (0.2)	21	7.8	10	4.2	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	37	40
	11/10/15	5 - 6	N	ND (2.1) *	3.1	77	ND (1) *	ND (1)	ND (0.21)	20	7.6	9.5	2.8	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2.1) *	34	40
SD-21	03/10/16	0 - 1	N	ND (2) *	3.2	71	ND (1) *	ND (1)	ND (0.2)	21	7	8.7	2.4	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	32	44
	03/10/16	2 - 3	N	ND (2.1) *	5.4	79	ND (1) *	ND (1)	0.81	31	6.4	10	4.5	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	34	60
SD-22	03/09/16	0 - 1	N	ND (2.1) *	3.3	100	ND (1) *	ND (1)	ND (0.21)	22	6.4	13	10	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	30	61
	03/09/16	2 - 3	N	ND (2.1) *	3.2	110	ND (1) *	ND (1)	ND (0.21)	27	7.4	10	4.7	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2.1) *	32	49
Bank 1	03/07/03	0	N	---	---	---	---	---	ND (4) *	21.5	---	13.7	---	---	---	14.3	---	---	---	---	55
L-1	02/20/03	0	N	---	---	---	---	---	ND (4.1) *	88.4	---	34.8	---	---	---	17	---	---	---	---	99.7
	02/20/03	2	N	---	---	---	---	---	2.5	217	---	69.6	---	---	---	10.8	---	---	---	---	123
L-2	02/20/03	0	N	---	---	---	---	---	ND (4.7) *	86.8	---	42.7	---	---	---	22.8	---	---	---	---	122
	02/20/03	2	N	---	---	---	---	---	13	3,360	---	211	---	---	---	18	---	---	---	---	278
L-2-2	03/05/03	- 2	N	---	---	---	---	---	41	1,610	---	139	---	---	---	19	---	---	---	---	203
L-2-3	03/05/03	- 2	N	---	---	---	---	---	99	2,740	---	288	---	---	---	25	---	---	---	---	299
L-3	02/20/03	0	N	---	---	---	---	---	ND (4.5) *	28.4	---	22.7	---	---	---	18.1	---	---	---	---	74.3
	02/20/03	1	N	---	---	---	---	---	1.2 J	379	---	79.7	---	---	---	10.1	---	---	---	---	252
	02/20/03	1.5	N	---	---	---	---	---	ND (4) *	77.7	---	17.2	---	---	---	11.9	---	---	---	---	61.9
L-3-2	03/05/03	0 - 0.5	N	---	---	---	---	---	9.4	228	---	40.5	---	---	---	15.1	---	---	---	---	129
PS-21	04/13/99	0	N	---	---	---	---	---	0.9	16.5	---	14.2	---	---	---	10.5	---	---	---	---	43.9
	04/13/99	2	N	---	---	---	---	---	ND (0.51)	90	---	12.6	---	---	---	10.8	---	---	---	---	59.1
PS-22	04/13/99	0	N	---	---	---	---	---	ND (0.5)	24.7	---	11.4	---	---	---	10.5	---	---	---	---	85.3

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

Θ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-6b

Sample Results: Contract Laboratory Program Inorganics
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC10-25	01/08/17	0 - 0.5	N	7,600	17,000	17,000 J	5,400	260	2,300	250	---
	01/08/17	0 - 0.5	FD	8,900	20,000	21,000 J	6,400	300	1,900	290	---
AOC10-3	09/19/08	0 - 0.5	N	7,100	31,000	13,000 J	7,700 J	260	1,800	480	ND (1) *
	09/19/08	0 - 0.5	FD	7,200	29,000	13,000	7,500	250	1,700	450	ND (0.998) *
AOC10-5	09/19/08	0 - 0.5	N	18,000	44,000	28,000	12,000	1,300	4,100	360	ND (1) *
AOC10-8	08/22/08	0 - 0.5	N	7,900	23,000	17,000	6,100	470	1,600	170	ND (4.86) *
	08/22/08	0 - 0.5	FD	8,100	20,000	18,000	6,300	390	1,500	160	ND (5.06) *
AOC10a-1	10/17/08	0 - 0.5	N	4,100 J	18,000	32,000 J	3,900	270	1,100	540	ND (1.07) *
AOC10b-1	09/30/08	0 - 0.5	N	4,900	20,000	13,000	4,700	180	990	200	ND (1) *
AOC10c-1	10/01/08	0 - 0.5	N	7,500	24,000	15,000	6,500	210	1,500	250	ND (1) *
AOC10c-2	10/01/08	0 - 0.5	N	8,200	25,000	15,000	6,600	230	1,900	330	ND (1.01) *
AOC10d-2	09/17/08	0 - 0.5	N	11,000	28,000	18,000	8,200	370	2,300	210	ND (1) *
AOC10d-3	09/17/08	0 - 0.5	N	8,900	20,000	17,000	6,700	270	1,700	190	ND (1) *
DTSC-AOC10d-1	01/18/08 ⊖	0	N	---	265,000	8,680	14,300	---	1,730	2,790	---
DTSC-AOC10d-2	01/18/08 ⊖	0	N	---	234,000	14,000	13,200	---	2,120	1,780	---
DTSC-AOC10d-3	01/18/08 ⊖	0	N	---	22,500	14,200	12,800	---	2,640	1,820	---
SD-03	11/10/15	0 - 1	N	5,800	24,000	10,000	5,100	250	1,300	400	ND (0.202) J
	11/10/15	2 - 3	N	2,600	17,000	5,800	3,300	130	600	200	ND (0.203) J
SD-05	11/10/15	0 - 1	N	4,700 J	18,000	9,000 J	5,200	150	1,700	1,800	0.205 J
	11/10/15	0 - 1	FD	6,000 J	18,000	12,000 J	5,700	160	1,800	620	0.223 J
L-3	02/20/03	1	N	---	139,000	540 J	12,800	---	---	1,280 J	---

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-6c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Category 1																								
AOC10-1	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7	ND (5)	ND (5)	ND (5)	ND (5)	6.6	ND	13.6	5.8
	10/02/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.7)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-10	01/22/16	0 - 1	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	6.5 J	5.8 J	5.2 R	5.2 R	5.2 R	5.2 J	5.2 R	5.2 R	5.2 R	5.2 R	5.2 J	ND	22.7	6.4 JR
	01/22/16	2 - 3	N	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	ND	ND	6.4 R
	01/22/16	5 - 6	N	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	ND	ND	6.1 R
AOC10-11	01/22/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/22/16	0 - 1	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/22/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/22/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/22/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)
AOC10-12	01/22/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (58)
	01/22/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/22/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)
	01/22/16	9 - 10	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC10-13	12/03/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	8.9	17	6.4	7.8	12	ND (5.3)	21	ND (5.3)	6.4	ND (5.3)	6	20	6	99.5	14
	12/03/15	0 - 1	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	8.9	16	6.1	7.5	12	ND (5.4)	22	ND (5.4)	5.7	ND (5.4)	6.1	20	6.1	103.6	14
AOC10-14	12/03/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10-15	12/15/15	0 - 1	N	81 J	120 J	ND (5)	ND (5)	ND (5)	53	64	120	ND (50)	ND (50)	77 J	ND (50)	180 J	ND (5)	ND (50)	ND (5)	78 J	150 J	279	644	110
	12/15/15	0 - 1	FD	44 J	91	ND (5.1)	ND (5.1)	6.4	67	69	170	18	50	85	ND (5.1)	210	ND (5.1)	20	18	81	180	240.4	869	98
	12/15/15	2 - 3	N	5.8	6.8	ND (5.1)	ND (5.1)	5.4	49	ND (51)	85	ND (51)	ND (51)	75	ND (51)	180	ND (5.1)	ND (51)	ND (5.1)	66	170	84	559	67
	12/15/15	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	23	ND (51)	ND (51)	ND (51)	ND (51)	33	ND (51)	86	ND (5.1)	ND (51)	ND (5.1)	46	73	46	215	59
	12/15/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10-16	12/15/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	12/15/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	12/15/15	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	12/15/15	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-17	12/03/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-18	12/06/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	12/06/15	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC10-19	02/24/16	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	02/24/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/24/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/24/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

TABLE 3-6c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL[3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values[4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background[5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC10-2	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/02/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/02/08	7 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-20	02/17/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/25/16	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC10-21	02/25/16	0 - 0.5	N	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (250)	ND (250) *	ND (250)	ND (250)	ND (250)	ND (250)	ND (250) *	71	ND (25)	ND (250)	ND (25)	86	ND (25)	86	71	290
	02/25/16	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC10-22	02/17/16	0 - 0.5	N	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250) *	ND (250)	ND (250)	ND (250)	550	ND (250) *	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	270	ND	820	290
	02/17/16	1 - 2	N	ND (5.3) J	ND (5.3) J	ND (5.3) J	ND (5.3) J	ND (5.3) J	ND (5.3) J	ND (53)	ND (53)	ND (53)	ND (53)	31 J	ND (53)	34 J	ND (5.3) J	ND (53)	ND (5.3) J	8.2 J	37 J	8.2	102	59
	02/17/16	2 - 3	N	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	ND (260) *	ND (260)	ND (260)	ND (260)	ND (260)	ND (260) *	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	ND	ND	ND (300) *
	02/17/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-23	02/25/16	0 - 1	N	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	51 J	45 J	82 J	23 J	28 J	56 J	ND (5.1) J	100 J	ND (5.1) J	22 J	ND (5.1) J	27 J	97 J	27	504	63
	02/25/16	1 - 2	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	15 J	ND (5)	ND (50)	ND (5)	16 J	ND (5)	16	15	58
	02/25/16	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC10-25	01/08/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1 J	7.1 J	15 J	ND (5.1)	ND (5.1) J	7.8 J	ND (5.1)	12 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	14 J	ND	61	12
	01/08/17	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	37 J	54 J	99 J	17 J	32 J	50 J	ND (5.1)	75 J	ND (5.1)	17 J	ND (5.1)	24 J	86 J	24	467	72
	01/08/17	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/08/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/08/17	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-3	09/19/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.2	5.4	ND (5)	5.9	7	ND (5)	11	ND (5)	ND (5)	ND (5)	ND (5)	9.7	ND	44.2	8.8
	09/19/08	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.4	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	5.4	5.8
	09/19/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/19/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/19/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10-4	09/19/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8	9.2	7.3	8.9	11	ND (5)	17	ND (5)	6.4	ND (5)	5.4	16	5.4	83.8	12
	09/19/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/19/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/19/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10-5	09/19/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	44	76	88 J	62	84	100	20	150	ND (5.1)	57	ND (5.1)	42	130	42	811	120
	09/19/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.8	190	290	370	240	300	350	61	530	ND (5.1)	230	ND (5.1)	190	500	199.8	3,061	430
	09/19/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/19/08	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	5.9	5.4	6.3	7.6	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.7	ND	50.7	9.5
AOC10-6	09/20/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	22	36	33	32	46	46	9.2	70	ND (5)	28	ND (5)	22	64	22	386.2	54
	09/20/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.4	39	16	ND (5.1)	ND (5.1)	92	ND (5.1)	24	ND (5.1)	ND (5.1)	ND (5.1)	90	44	90	223.4	44

TABLE 3-6c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC10-7	09/20/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.4 J	10 J	9.7 J	8.6 J	11 J	13 J	ND (5)	18 J	ND (5)	7.9 J	ND (5)	5.7 J	17 J	5.7	100.6	15
	09/20/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.2	ND	10.6	5.9
	09/20/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10-8	08/22/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	08/22/08	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC10-9	12/07/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	12/07/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10a-1	10/17/08	0 - 0.5	N	ND (80)	ND (80)	ND (80)	ND (80)	86	560	920	1,600	1,400	580	930	340	1,000	ND (80)	1,100	ND (80)	200	1,100	286	9,530	1,600
AOC10a-2	01/13/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.4	12	6.7	7	7.7	ND (5.3)	11	ND (5.3)	6	ND (5.3)	ND (5.3)	11	ND	68.8	12
	01/13/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/13/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/13/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC10a-3	01/13/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/13/16	2 - 3	N	7.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	33	ND (52)	50	ND (5.2)	ND (52)	ND (5.2)	14	47	21.3	130	58
	01/13/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/13/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10a-4	01/08/17	0 - 0.5	N	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	9.4 J	12 J	21 J	8.3 J	7.2 J	12 J	5.4 R	20 J	5.4 R	7.9 J	5.4 R	5.4 R	19 J	ND	116.8 JR	19 JR
	01/08/17	2 - 3	N	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	ND	ND	5.9 R
AOC10b-1	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.4	10	9.5	10	8.9	ND (5)	7.4	ND (5)	7.4	ND (5)	ND (5)	7.3	ND	67.9	12
	09/30/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	2 - 3	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10b-2	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.4	14	22	15	17	18	ND (5)	19	ND (5)	13	ND (5)	ND (5)	19	ND	144.4	21
	09/30/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10b-3	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10	10	34	18	18	19	6	8.7	ND (5)	16	ND (5)	ND (5)	8.9	ND	148.6	22
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/01/08	5 - 6	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/01/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10b-4	09/30/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.1	11	13	8.6	16	16	ND (5)	20	ND (5)	7.7	ND (5)	5.6	19	5.6	119.4	17
	09/30/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

TABLE 3-6c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC10c-1	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7	11	11	11	13	13	ND (5)	18	ND (5)	8.7	ND (5)	ND (5)	18	ND	110.7	16
	10/01/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	15	21	23	18	27	27	6.3	33	ND (5)	17	ND (5)	9.3	32	9.3	219.3	33
	10/01/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10c-2	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	16	24	25	20	32	30	7.1	37	ND (5)	19	ND (5)	9.6	36	9.6	246.1	37
	10/01/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	51	72	73	46	89	92	18	130	ND (5)	46	ND (5)	36	120	36	737	110
	10/01/08	2 - 3	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	54	70	66	43	87	90	17	120	ND (5)	43	ND (5)	36	120	36	710	100
	10/01/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	18	25	24	17	30	30	7.5	38	ND (5)	16	ND (5)	10	37	10	242.5	39
	10/01/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10c-3	10/02/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	37	63	76	60	80	89	17	110	ND (5.1)	55	ND (5.1)	30	99	30	686	98
	10/02/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.4	230 J	180 J	200 J	84 J	170 J	260 J	33 J	400 J	ND (5.2)	92 J	ND (5.2)	72 J	350 J	80.4	1,999	270
	10/02/08	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	14 J	24 J	36 J	22 J	25 J	30 J	6.2 J	39 J	ND (5.2)	20 J	ND (5.2)	11 J	38 J	11	254.2	37
	10/02/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10c-4	10/01/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	24	49	79	43	60	71	14	87	ND (5.2)	38	ND (5.2)	23	82	23	547	78
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.9	14	7.7	11	12	ND (5.1)	15	ND (5.1)	7	ND (5.1)	ND (5.1)	15	ND	90.6	14
	10/01/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11	17	23	17	24	24	ND (5.2)	30	ND (5.2)	15	ND (5.2)	8.6	29	8.6	190	25
AOC10c-5	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	53	59	71	58	67	84	21	120	ND (5)	50	ND (5)	58	100	58	683	98
	10/01/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	52	69	96	62	68	94	22	100	ND (5.2)	59	ND (5.2)	29	100	29	722	110
	10/01/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/01/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10c-6	01/21/16	14 - 15	N	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	ND	ND	5.9 R
AOC10d-1	09/18/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	9.9	16	25	18	6.2	12	ND (5)	14	ND (5)	14	ND (5)	ND (5)	14	ND	129.1	23
	09/18/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/18/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/18/08	5 - 6	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/18/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC10d-2	09/17/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	80	120	160	72	68	140	22	230	ND (5)	76	ND (5)	77	210	77	1,178	170
	09/17/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	17	26	14	11	23	ND (5.1)	35	ND (5.1)	14	ND (5.1)	11	32	11	183	25
	09/17/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.1	14	20	12	9.8	16	ND (5.1)	26	ND (5.1)	12	ND (5.1)	7.8	24	7.8	142.9	21
	09/17/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-6c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC10d-3	09/17/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	7.9	140	190	250	110	120	220	33	360	ND (5)	120	ND (5)	130	340	137.9	1,883	280
	09/18/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	38	52	73	43	22	58	11	99	ND (5.1)	41	ND (5.1)	34	90	34	527	78
	09/18/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.2	7	ND (5.1)	ND (5.1)	5.4	ND (5.1)	7.9	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.2	ND	33.7	9
	09/18/08	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/18/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10d-4	09/18/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	13	23	41	21	11	32	ND (5.2)	47	ND (5.2)	20	ND (5.2)	15	42	15	250	33
	09/18/08	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	13	29	43	25	15	31	5.8	44	ND (5.3)	23	ND (5.3)	12	42	12	270.8	43
	09/18/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/18/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC10d-9	12/15/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	20	ND (51)	ND (51)	ND (51)	ND (51)	30	ND (51)	49	ND (5.1)	ND (51)	ND (5.1)	10	46	10	145	58
	12/15/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	12/15/15	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	12/15/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
MW-57BR	01/14/09	3 - 4	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/14/09	8 - 9	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.6)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/14/09	8 - 9	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/14/09	18 - 19	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
MW-58BR_S	01/29/09	19 - 20	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.6)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/29/09	29 - 30	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/29/09	39 - 40	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.2)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/29/09	49 - 50	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/29/09	59 - 60	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (4.8)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
PA-06	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.5	5.1	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	18.7	6.5
PA-18	01/27/16	0 - 1	N	6.2 J	13 J	8.3 J	6.2 J	27 J	1,000 J	1,100	1,900	590	800	1,000	ND (520) *	1,700	6.6 J	560	12 J	780 J	1,600	859.3	10,250	1,700
	01/26/17	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	39	58	120	25	37 J	58	ND (5.1)	80	ND (5.1)	25	ND (5.1)	26	80	26	522	79
	01/26/17	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	46	65	140	25	37 J	63	ND (5.1)	97	ND (5.1)	26	ND (5.1)	33	93	33	592	89
	01/26/17	5 - 6	N	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	11 J	17 J	29 J	11 J	8.9 J	16 J	5.1 R	20 J	5.1 R	11 J	5.1 R	5.8 J	20 J	5.8 JR	143.9 JR	25 JR
PA-19	01/27/16	0 - 1	N	ND (57)	ND (57)	ND (57)	ND (57)	95	ND (3,800) *	4,400 J	15,000	ND (3,800)	5,800 J	5,200 J	ND (3,800) *	1,300	ND (57)	ND (3,800) *	ND (57)	490	1,200	585	32,900	8,200
	01/31/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	24	ND (5.2)	24	ND	6
PA-20	01/27/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	26	29	410	610	1,400	450	330	780	ND (5.1)	830	ND (5.1)	410	ND (5.1)	120	720	175	5,940	840
	01/31/17	2 - 3	N	ND (5.3) J	ND (5.3) J	ND (5.3)	ND (5.3)	ND (5.3)	6	7.8	20	7.8	5.7	11	ND (5.3)	9.9	ND (5.3)	6.7	ND (5.3) J	20	9.2	20	84.1	14
PA-21	01/27/16	0 - 1	N	ND (5.1)	ND (5.1)	8.5 J	25 J	68	1,200	1,700	2,900	840	1,100	2,100	ND (5.1)	2,600	9.8 J	840	14 J	570	2,600	695.3	15,880	2,200
	01/31/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

TABLE 3-6c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 10 – East Ravine
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
SD-01	01/13/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	13	26	10	11	12	ND (5.3)	12	ND (5.3)	8.1	ND (5.3)	ND (5.3)	13	ND	112.1	20
	01/13/16	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	01/13/16	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	01/13/16	9 - 10	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
SD-02	11/10/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (5)	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND	ND	ND (56)
	11/10/15	2 - 3	N	ND (25)	ND (25)	ND (25)	ND (25)	29	360	ND (250) *	510	ND (250)	ND (250)	390	ND (250) *	500	ND (25)	ND (250)	ND (25)	260	420	289	2,180	350
SD-03	11/10/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	11/10/15	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (5)	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND	ND	ND (56)
SD-04	11/10/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	11/10/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SD-05	11/10/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	18	30	58	16	17	39	ND (5.1)	57	ND (5.1)	17	ND (5.1)	21	58	21	310	42
	11/10/15	0 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	27	49	94	21	32	60	ND (5.1)	83	ND (5.1)	23	ND (5.1)	26	85	26	474	66
	11/10/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.4	ND (5.2)	ND (5.2)	5.2	ND (5.2)	7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.7	ND	28.3	6.6
SD-06	11/10/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.1	12	26	6.7	8.7	16	ND (5)	23	ND (5)	6.7	ND (5)	ND (5)	22	ND	128.2	19
	11/10/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	11/10/15	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SD-21	03/10/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.7	16	5.4	6.1	10	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	ND	68.2	12
	03/10/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	19 J	39 J	85 J	13 J	38 J	38 J	ND (52)	45 J	ND (5.2)	10 J	ND (5.2)	13 J	43 J	13	330	77
SD-22	03/09/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	35 J	73 J	190 J	22 J	63 J	87 J	ND (5.1)	120 J	ND (5.1)	21 J	ND (5.1)	36 J	100 J	36	711	100
	03/09/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.6	ND (5.2)	ND (5.2)	5.5	ND (5.2)	6.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.6	ND	25.9	6.5

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-6d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Interim Screening Level [1]:	**570,000**
			Residential Regional Screening Levels [2]:	**570,000**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Isophorone**
Category 1				
AOC10-1	10/02/08	0 - 0.5	N	ND (330)
	10/02/08	2 - 3	N	ND (330)
	10/02/08	5 - 6	N	ND (340)
	10/02/08	9 - 10	N	ND (330)
AOC10-11	01/22/16	0 - 1	N	ND (340)
	01/22/16	0 - 1	FD	ND (350)
	01/22/16	2 - 3	N	ND (340)
	01/22/16	5 - 6	N	ND (340)
	01/22/16	9 - 10	N	ND (340)
AOC10-15	12/15/15	0 - 1	N	ND (330)
	12/15/15	0 - 1	FD	ND (330)
	12/15/15	2 - 3	N	ND (340)
	12/15/15	5 - 6	N	ND (330)
	12/15/15	9 - 10	N	ND (330)
AOC10-16	12/15/15	0 - 1	N	ND (340)
	12/15/15	2 - 3	N	ND (330)
	12/15/15	5 - 6	N	ND (340)
	12/15/15	9 - 10	N	ND (340)
AOC10-2	10/02/08	0 - 0.5	N	ND (330)
	10/02/08	2 - 3	N	ND (340)
	10/02/08	5 - 6	N	ND (340)
	10/02/08	7 - 8	N	ND (340)
AOC10-20	02/17/16	0 - 0.5	N	ND (330)
	02/25/16	2 - 3	N	ND (330)
AOC10-21	02/25/16	0 - 0.5	N	ND (1,700)
	02/25/16	2 - 3	N	ND (330)
AOC10-22	02/17/16	0 - 0.5	N	ND (83,000)
	02/17/16	1 - 2	N	2,200
	02/17/16	2 - 3	N	ND (84,000)
	02/17/16	5 - 6	N	ND (330)

TABLE 3-6d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Interim Screening Level [1]:	**570,000**
			Residential Regional Screening Levels [2]:	**570,000**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Isophorone**
AOC10-23	02/25/16	0 - 1	N	2,800
	02/25/16	1 - 2	N	ND (330)
	02/25/16	2 - 3	N	ND (330)
AOC10-25	01/08/17	0 - 0.5	N	ND (340)
	01/08/17	0 - 0.5	FD	ND (340)
AOC10-3	09/19/08	0 - 0.5	N	ND (330)
	09/19/08	0 - 0.5	FD	ND (330)
	09/19/08	2 - 3	N	ND (340)
	09/19/08	5 - 6	N	ND (340)
AOC10-4	09/19/08	0 - 0.5	N	ND (330)
	09/19/08	2 - 3	N	ND (340)
	09/19/08	5 - 6	N	ND (340)
AOC10-5	09/19/08	0 - 0.5	N	ND (1,700)
	09/19/08	2 - 3	N	ND (340)
	09/19/08	5 - 6	N	ND (340)
	09/19/08	5 - 6	FD	ND (340)
AOC10-6	09/20/08	0 - 0.5	N	ND (330)
	09/20/08	2 - 3	N	ND (840)
AOC10-7	09/20/08	0 - 0.5	N	ND (330)
	09/20/08	2 - 3	N	ND (330)
	09/20/08	5 - 6	N	ND (340)
AOC10-8	08/22/08	0 - 0.5	N	ND (330)
	08/22/08	0 - 0.5	FD	ND (330)
AOC10a-1	10/17/08	0 - 0.5	N	ND (21,000)
AOC10b-1	09/30/08	0 - 0.5	N	ND (330)
	09/30/08	2 - 3	N	ND (330)
	09/30/08	2 - 3	FD	ND (330)
	09/30/08	5 - 6	N	ND (330)
	09/30/08	9 - 10	N	ND (330)
AOC10b-2	09/30/08	0 - 0.5	N	ND (330)
	09/30/08	2 - 3	N	ND (330)
	09/30/08	5 - 6	N	ND (330)
	09/30/08	9 - 10	N	ND (330)

TABLE 3-6d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Interim Screening Level [1]:	**570,000**
			Residential Regional Screening Levels [2]:	**570,000**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Isophorone**
AOC10b-3	09/30/08	0 - 0.5	N	ND (330)
	10/01/08	2 - 3	N	ND (340)
	10/01/08	5 - 6	N	ND (340)
	10/01/08	5 - 6	FD	ND (340)
	10/01/08	9 - 10	N	ND (340)
AOC10b-4	09/30/08	0 - 0.5	N	ND (330)
	09/30/08	2 - 3	N	ND (330)
	09/30/08	5 - 6	N	ND (330)
	09/30/08	9 - 10	N	ND (340)
AOC10c-1	10/01/08	0 - 0.5	N	ND (330)
	10/01/08	2 - 3	N	ND (330)
	10/01/08	5 - 6	N	ND (330)
	10/01/08	9 - 10	N	ND (340)
AOC10c-2	10/01/08	0 - 0.5	N	ND (330)
	10/01/08	2 - 3	N	ND (330)
	10/01/08	2 - 3	FD	ND (330)
	10/01/08	5 - 6	N	ND (330)
	10/01/08	9 - 10	N	ND (340)
AOC10c-3	10/02/08	0 - 0.5	N	ND (340)
	10/02/08	2 - 3	N	ND (340)
	10/02/08	2 - 3	FD	ND (340)
	10/02/08	5 - 6	N	ND (330)
	10/02/08	9 - 10	N	ND (340)
AOC10c-4	10/01/08	0 - 0.5	N	ND (340)
	10/01/08	2 - 3	N	ND (340)
	10/01/08	5 - 6	N	ND (340)
	10/01/08	9 - 10	N	ND (340)
AOC10c-5	10/01/08	0 - 0.5	N	ND (330)
	10/01/08	2 - 3	N	ND (340)
	10/01/08	5 - 6	N	ND (340)
	10/01/08	9 - 10	N	ND (340)

TABLE 3-6d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
Interim Screening Level [1]:				**570,000**
Residential Regional Screening Levels [2]:				**570,000**
Residential DTSC-SL [3]:				**NE**
Ecological Comparison Values [4]:				**NE**
Background [5]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Isophorone**
AOC10d-1	09/18/08	0 - 0.5	N	ND (330)
	09/18/08	2 - 3	N	ND (340)
	09/18/08	5 - 6	N	ND (340)
	09/18/08	5 - 6	FD	ND (340)
AOC10d-2	09/17/08	0 - 0.5	N	ND (830)
	09/17/08	2 - 3	N	ND (340)
	09/17/08	5 - 6	N	ND (340)
AOC10d-3	09/17/08	0 - 0.5	N	ND (330)
	09/18/08	2 - 3	N	ND (340)
	09/18/08	5 - 6	N	ND (340)
	09/18/08	5 - 6	FD	ND (340)
AOC10d-4	09/18/08	0 - 0.5	N	ND (340)
	09/18/08	2 - 3	N	ND (350)
	09/18/08	5 - 6	N	ND (340)
MW-57BR	01/14/09	3 - 4	N	ND (340)
	01/14/09	8 - 9	N	ND (340)
	01/14/09	8 - 9	FD	ND (340)
	01/14/09	18 - 19	N	ND (340)
MW-58BR_S	01/29/09	19 - 20	N	ND (350)
	01/29/09	29 - 30	N	ND (350)
	01/29/09	39 - 40	N	ND (350)
	01/29/09	49 - 50	N	ND (350)
	01/29/09	59 - 60	N	ND (360)
PA-06	11/09/15	0 - 1	N	ND (340)
PA-18	01/27/16	0 - 1	N	ND (340)
PA-19	01/27/16	0 - 1	N	ND (3,800)
PA-20	01/27/16	0 - 1	N	ND (340)
PA-21	01/27/16	0 - 1	N	ND (340)

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-6e
Sample Results: Total Petroleum Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC10-1	10/02/08	0 - 0.5	N	ND (10) J	ND (10) J
	10/02/08	2 - 3	N	ND (10)	ND (10)
	10/02/08	5 - 6	N	ND (10) J	ND (10) J
	10/02/08	9 - 10	N	ND (10)	ND (10)
AOC10-11	01/22/16	0 - 1	N	ND (10)	ND (10)
	01/22/16	0 - 1	FD	ND (11)	ND (11)
	01/22/16	2 - 3	N	ND (10)	ND (10)
	01/22/16	5 - 6	N	ND (10)	ND (10)
	01/22/16	9 - 10	N	ND (10)	ND (10)
AOC10-15	12/15/15	0 - 1	N	13	48
	12/15/15	0 - 1	FD	11	47
	12/15/15	2 - 3	N	15	59
	12/15/15	5 - 6	N	ND (10)	14
	12/15/15	9 - 10	N	ND (10)	ND (10)
AOC10-2	10/02/08	0 - 0.5	N	ND (10) J	ND (10) J
	10/02/08	2 - 3	N	ND (10)	ND (10)
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	7 - 8	N	ND (10)	ND (10)
AOC10-20	02/17/16	0 - 0.5	N	ND (10)	ND (10)
	02/25/16	2 - 3	N	ND (10)	ND (10)
AOC10-21	02/25/16	0 - 0.5	N	4,000	8,900
	02/25/16	2 - 3	N	ND (10)	17
AOC10-22	02/17/16	0 - 0.5	N	2,100	4,900
	02/17/16	1 - 2	N	170	400
	02/17/16	2 - 3	N	1,500	3,200
	02/17/16	5 - 6	N	18	81
AOC10-23	02/25/16	0 - 1	N	24	69
	02/25/16	1 - 2	N	630	1,600
	02/25/16	2 - 3	N	ND (10)	ND (10)
AOC10-3	09/19/08	0 - 0.5	N	ND (10)	11.3
	09/19/08	0 - 0.5	FD	ND (10)	13
	09/19/08	2 - 3	N	ND (10)	ND (10)
	09/19/08	5 - 6	N	ND (10)	ND (10)
AOC10-4	09/19/08	0 - 0.5	N	ND (10)	ND (10)
	09/19/08	2 - 3	N	ND (10)	ND (10)
	09/19/08	5 - 6	N	ND (10)	ND (10)

TABLE 3-6e
Sample Results: Total Petroleum Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC10-5	09/19/08	0 - 0.5	N	ND (10)	47.1
	09/19/08	2 - 3	N	ND (10)	33.1
	09/19/08	5 - 6	N	ND (10)	19.7
	09/19/08	5 - 6	FD	ND (10)	ND (10)
AOC10-6	09/20/08	0 - 0.5	N	ND (10)	15.7
	09/20/08	2 - 3	N	51.8	207
AOC10-7	09/20/08	0 - 0.5	N	ND (10)	26.5
	09/20/08	2 - 3	N	ND (10)	14.5
	09/20/08	5 - 6	N	ND (10)	11.5
AOC10-8	08/22/08	0 - 0.5	N	ND (10)	ND (10)
	08/22/08	0 - 0.5	FD	ND (10)	ND (10)
AOC10a-1	10/17/08	0 - 0.5	N	ND (213) J	297 J
AOC10b-1	09/30/08	0 - 0.5	N	ND (10)	10.9
	09/30/08	2 - 3	N	ND (10)	13.3
	09/30/08	2 - 3	FD	ND (10)	14.5
	09/30/08	5 - 6	N	34.2	ND (10)
	09/30/08	9 - 10	N	ND (10)	ND (10)
AOC10b-2	09/30/08	0 - 0.5	N	ND (10)	11.2
	09/30/08	2 - 3	N	ND (10)	17
	09/30/08	5 - 6	N	ND (10)	ND (10)
	09/30/08	9 - 10	N	ND (10)	11
AOC10b-3	09/30/08	0 - 0.5	N	ND (10)	56
	10/01/08	2 - 3	N	ND (10)	14.4
	10/01/08	5 - 6	N	ND (10)	ND (10)
	10/01/08	5 - 6	FD	ND (10)	ND (10)
	10/01/08	9 - 10	N	ND (10) J	ND (10) J
AOC10b-4	09/30/08	0 - 0.5	N	ND (10)	ND (10)
	09/30/08	2 - 3	N	ND (10)	ND (10)
	09/30/08	5 - 6	N	ND (10)	ND (10)
	09/30/08	9 - 10	N	ND (10)	ND (10)
AOC10c-1	10/01/08	0 - 0.5	N	ND (10)	20.6
	10/01/08	2 - 3	N	ND (10)	34.1
	10/01/08	5 - 6	N	ND (10)	13.9
	10/01/08	9 - 10	N	ND (10) J	ND (10) J
AOC10c-2	10/01/08	0 - 0.5	N	ND (10)	23.5
	10/01/08	2 - 3	N	ND (10)	32.4
	10/01/08	2 - 3	FD	ND (10)	34.4
	10/01/08	5 - 6	N	ND (10)	14.5
	10/01/08	9 - 10	N	ND (10) J	ND (10) J

TABLE 3-6e
Sample Results: Total Petroleum Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC10c-3	10/02/08	0 - 0.5	N	ND (10)	26.1
	10/02/08	2 - 3	N	ND (10)	67.4
	10/02/08	2 - 3	FD	ND (10)	82.5
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	9 - 10	N	ND (10)	ND (10)
AOC10c-4	10/01/08	0 - 0.5	N	ND (10)	20.5
	10/01/08	2 - 3	N	ND (10)	21.6
	10/01/08	5 - 6	N	ND (10)	ND (10)
	10/01/08	9 - 10	N	ND (10) J	ND (10) J
AOC10c-5	10/01/08	0 - 0.5	N	ND (10)	18.1
	10/01/08	2 - 3	N	ND (10)	70.9
	10/01/08	5 - 6	N	ND (10)	ND (10)
	10/01/08	9 - 10	N	ND (10) J	ND (10) J
AOC10d-1	09/18/08	0 - 0.5	N	ND (10)	ND (10)
	09/18/08	2 - 3	N	ND (10)	15.3
	09/18/08	5 - 6	N	11.1	27.9
	09/18/08	5 - 6	FD	ND (10)	ND (10)
AOC10d-2	09/17/08	0 - 0.5	N	ND (10)	ND (10)
	09/17/08	2 - 3	N	ND (10)	27.3 J
	09/17/08	5 - 6	N	ND (10)	38.3 J
AOC10d-3	09/17/08	0 - 0.5	N	ND (10)	16.1 J
	09/18/08	2 - 3	N	ND (10)	ND (10)
	09/18/08	5 - 6	N	ND (10)	ND (10)
	09/18/08	5 - 6	FD	ND (10)	ND (10)
AOC10d-4	09/18/08	0 - 0.5	N	ND (10)	11.6
	09/18/08	2 - 3	N	ND (10)	16.8
	09/18/08	5 - 6	N	ND (10)	11.6
MW-57BR	01/14/09	3 - 4	N	ND (10)	ND (10)
	01/14/09	8 - 9	N	ND (10)	ND (10)
	01/14/09	8 - 9	FD	ND (10)	ND (10)
	01/14/09	18 - 19	N	ND (10)	ND (10)
MW-58BR_S	01/29/09	19 - 20	N	ND (11)	ND (11)
	01/29/09	29 - 30	N	ND (11)	ND (11)
	01/29/09	39 - 40	N	ND (11)	ND (11)
	01/29/09	49 - 50	N	ND (11)	ND (11)
	01/29/09	59 - 60	N	ND (11)	ND (11)
PA-06	11/09/15	0 - 1	N	ND (10)	21
PA-18	01/27/16	0 - 1	N	47	370
PA-19	01/27/16	0 - 1	N	130	580

TABLE 3-6e
Sample Results: Total Petroleum Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
PA-20	01/27/16	0 - 1	N	37	250
PA-21	01/27/16	0 - 1	N	35	190
SD-01	01/13/16	0 - 0.5	N	ND (11)	78
	01/13/16	2 - 3	N	ND (11)	ND (11)
	01/13/16	5 - 6	N	ND (11)	ND (11)
	01/13/16	9 - 10	N	ND (11)	ND (11)
SD-02	11/10/15	0 - 1	N	25	49
	11/10/15	2 - 3	N	410	1,500
SD-03	11/10/15	0 - 1	N	ND (10)	22
	11/10/15	2 - 3	N	ND (10)	ND (10)
SD-04	11/10/15	0 - 1	N	ND (10)	ND (10)
	11/10/15	2 - 3	N	ND (10)	ND (10)
SD-05	11/10/15	0 - 1	N	ND (10)	14
	11/10/15	0 - 1	FD	ND (10)	16
	11/10/15	2 - 3	N	ND (10)	ND (10)
SD-06	11/10/15	0 - 1	N	ND (10)	ND (10)
	11/10/15	2 - 3	N	ND (10)	ND (10)
	11/10/15	5 - 6	N	11	22
SD-21	03/10/16	0 - 1	N	ND (10)	ND (10)
	03/10/16	2 - 3	N	ND (10)	39
SD-22	03/09/16	0 - 1	N	ND (10)	79
	03/09/16	2 - 3	N	ND (10)	12

TABLE 3-6e

Sample Results: Total Petroleum Hydrocarbons
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-6f

Sample Results: General Chemistry Parameters
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)
			Interim Screening Level [1]:	NE	NE	NE	NE	NE	NE
			Residential Regional Screening Levels [2]:	NE	NE	NE	NE	NE	NE
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Alkalinity, total as CaCO3	Chloride	pH	Sulfate
Category 1									
AOC10-1	10/02/08	0 - 0.5	N	---	---	---	---	8.44	---
	10/02/08	2 - 3	N	---	---	---	---	8.19	---
	10/02/08	5 - 6	N	---	---	---	---	8.06	---
AOC10-11	01/22/16	0 - 1	N	---	---	---	---	8.5	---
	01/22/16	0 - 1	FD	---	---	---	---	9.1	---
	01/22/16	2 - 3	N	---	---	---	---	9.4	---
	01/22/16	5 - 6	N	---	---	---	---	9.4	---
	01/22/16	9 - 10	N	---	---	---	---	9.9	---
AOC10-13	12/03/15	0 - 1	N	---	---	---	---	8.8	---
	12/03/15	0 - 1	FD	---	---	---	---	8.8	---
AOC10-14	12/03/15	0 - 1	N	---	---	---	---	8.3	---
AOC10-15	12/15/15	0 - 1	N	---	---	---	---	8.9	---
	12/15/15	0 - 1	FD	---	---	---	---	8.9	---
	12/15/15	2 - 3	N	---	---	---	---	8.3	---
	12/15/15	5 - 6	N	---	---	---	---	8.5	---
	12/15/15	9 - 10	N	---	---	---	---	9.2	---
AOC10-16	12/15/15	0 - 1	N	---	---	---	---	9.2	---
	12/15/15	2 - 3	N	---	---	---	---	9.6	---
	12/15/15	5 - 6	N	---	---	---	---	9.9	---
	12/15/15	9 - 10	N	---	---	---	---	9.8	---
AOC10-17	12/03/15	0 - 1	N	---	---	---	---	8.3	---
AOC10-2	10/02/08	0 - 0.5	N	---	---	---	---	7.98	---
	10/02/08	2 - 3	N	---	---	---	---	8.47	---
	10/02/08	5 - 6	N	---	---	---	---	8.15	---
AOC10-20	02/17/16	0 - 0.5	N	---	---	---	---	8.4	---
	02/25/16	2 - 3	N	---	---	---	---	8.9	---
AOC10-21	02/25/16	0 - 0.5	N	---	---	---	---	8	---
	02/25/16	2 - 3	N	---	---	---	---	8.4	---
AOC10-22	02/17/16	0 - 0.5	N	---	---	---	---	8	---
	02/17/16	1 - 2	N	---	---	---	---	8.4	---
	02/17/16	2 - 3	N	---	---	---	---	8.1	---
	02/17/16	5 - 6	N	---	---	---	---	8.1	---
AOC10-23	02/25/16	0 - 1	N	---	---	---	---	8.6	---
	02/25/16	1 - 2	N	---	---	---	---	7.6	---
	02/25/16	2 - 3	N	---	---	---	---	8.3	---

TABLE 3-6f

Sample Results: General Chemistry Parameters
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)
			Interim Screening Level [1]:	NE	NE	NE	NE	NE	NE
			Residential Regional Screening Levels [2]:	NE	NE	NE	NE	NE	NE
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Alkalinity, total as CaCO3**	**Chloride**	**pH**	**Sulfate**
AOC10-3	09/19/08	0 - 0.5	N	---	---	---	---	8.86	---
	09/19/08	0 - 0.5	FD	---	---	---	---	8.8	---
	09/19/08	2 - 3	N	---	---	---	---	9.26	---
	09/19/08	5 - 6	N	---	---	---	---	9.24	---
AOC10-4	09/19/08	0 - 0.5	N	---	---	---	---	8.2	---
	09/19/08	2 - 3	N	---	---	---	---	9.55	---
	09/19/08	5 - 6	N	---	---	---	---	9.28	---
AOC10-5	09/19/08	0 - 0.5	N	---	---	---	---	7.64	---
	09/19/08	2 - 3	N	---	---	---	---	8.22	---
	09/19/08	5 - 6	N	---	---	---	---	8.57	---
	09/19/08	5 - 6	FD	---	---	---	---	8.41	---
AOC10-6	09/20/08	0 - 0.5	N	---	---	---	---	8.55	---
	09/20/08	2 - 3	N	---	---	---	---	7.97	---
AOC10-7	09/20/08	0 - 0.5	N	---	---	---	---	8.05	---
	09/20/08	2 - 3	N	---	---	---	---	8.11	---
	09/20/08	5 - 6	N	---	---	---	---	7.91	---
AOC10-8	08/22/08	0 - 0.5	N	---	---	---	---	8.14	---
	08/22/08	0 - 0.5	FD	---	---	---	---	8.44	---
AOC10a-1	10/17/08	0 - 0.5	N	---	---	---	---	8.35	---
AOC10b-1	09/30/08	0 - 0.5	N	---	---	---	---	9.01	---
	09/30/08	2 - 3	N	---	---	---	---	9.75	---
	09/30/08	2 - 3	FD	---	---	---	---	9.75	---
	09/30/08	5 - 6	N	---	---	---	---	9.86	---
AOC10b-2	09/30/08	0 - 0.5	N	---	---	---	---	8.93	---
	09/30/08	2 - 3	N	---	---	---	---	9.7	---
	09/30/08	5 - 6	N	---	---	---	---	9.68	---
AOC10b-3	09/30/08	0 - 0.5	N	---	---	---	---	8.13	---
	10/01/08	2 - 3	N	---	---	---	---	9.41	---
	10/01/08	5 - 6	N	---	---	---	---	9.79	---
	10/01/08	5 - 6	FD	---	---	---	---	9.77	---
AOC10b-4	09/30/08	0 - 0.5	N	---	---	---	---	9	---
	09/30/08	2 - 3	N	---	---	---	---	9.61	---
	09/30/08	5 - 6	N	---	---	---	---	9.25	---
AOC10c-1	10/01/08	0 - 0.5	N	---	---	---	---	8.93	---
	10/01/08	2 - 3	N	---	---	---	---	8.99	---
	10/01/08	5 - 6	N	---	---	---	---	9.42	---

TABLE 3-6f
Sample Results: General Chemistry Parameters
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)
			Interim Screening Level [1]:	NE	NE	NE	NE	NE	NE
			Residential Regional Screening Levels [2]:	NE	NE	NE	NE	NE	NE
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Alkalinity, total as CaCO3	Chloride	pH	Sulfate
AOC10c-2	10/01/08	0 - 0.5	N	---	---	---	---	8.9	---
	10/01/08	2 - 3	N	---	---	---	---	8.74	---
	10/01/08	2 - 3	FD	---	---	---	---	8.78	---
	10/01/08	5 - 6	N	---	---	---	---	9.46	---
AOC10c-3	10/02/08	0 - 0.5	N	---	---	---	---	7.84	---
	10/02/08	2 - 3	N	---	---	---	---	9.16	---
	10/02/08	2 - 3	FD	---	---	---	---	9.29	---
	10/02/08	5 - 6	N	---	---	---	---	9.2	---
AOC10c-4	10/01/08	0 - 0.5	N	---	---	---	---	7.8	---
	10/01/08	2 - 3	N	---	---	---	---	9.35	---
	10/01/08	5 - 6	N	---	---	---	---	9.57	---
AOC10c-5	10/01/08	0 - 0.5	N	---	---	---	---	8.14	---
	10/01/08	2 - 3	N	---	---	---	---	8.79	---
	10/01/08	5 - 6	N	---	---	---	---	9.76	---
AOC10d-1	09/18/08	0 - 0.5	N	---	---	---	---	8.25	---
	09/18/08	2 - 3	N	---	---	---	---	8.89	---
	09/18/08	5 - 6	N	---	---	---	---	9.02	---
	09/18/08	5 - 6	FD	---	---	---	---	9	---
AOC10d-2	09/17/08	0 - 0.5	N	---	---	---	---	7.78	---
	09/17/08	2 - 3	N	---	---	---	---	8.63	---
	09/17/08	5 - 6	N	---	---	---	---	9.07	---
AOC10d-3	09/17/08	0 - 0.5	N	---	---	---	---	8.13	---
	09/18/08	2 - 3	N	---	---	---	---	8.85	---
	09/18/08	5 - 6	N	---	---	---	---	9.36	---
	09/18/08	5 - 6	FD	---	---	---	---	9.42	---
AOC10d-4	09/18/08	0 - 0.5	N	---	---	---	---	7.84	---
	09/18/08	2 - 3	N	---	---	---	---	8.54	---
	09/18/08	5 - 6	N	---	---	---	---	9.07	---
AOC10-OS1	04/06/11	0 - 0.5	N	---	---	---	---	8.4	---
	04/06/11	2.5 - 3	N	---	---	---	---	8.1	---
	04/06/11	5.5 - 6	N	---	---	---	---	7.8	---
	04/06/11	9.5 - 10	N	---	---	---	---	8.1	---
	04/06/11	11 - 11.5	N	---	---	---	---	8.6	---
AOC10-OS2	04/06/11	0 - 0.5	N	---	---	---	---	8.4	---
	04/06/11	2.5 - 3	N	---	---	---	---	8.9	---
	04/06/11	5.5 - 6	N	---	---	---	---	10	---
AOC10-OS3	04/06/11	5 - 5.5	N	---	---	---	---	9.1	---
AOC10-OS4	04/06/11	6.5 - 7	N	---	---	---	---	8.7	---

TABLE 3-6f

Sample Results: General Chemistry Parameters
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)
			Interim Screening Level [1]:	NE	NE	NE	NE	NE	NE
			Residential Regional Screening Levels [2]:	NE	NE	NE	NE	NE	NE
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Alkalinity, total as CaCO3**	**Chloride**	**pH**	**Sulfate**
DTSC-AOC10d-1	01/18/08 ϴ	0	N	40.4	ND (5)	35.1	7.02	7.7	15.7
DTSC-AOC10d-2	01/18/08 ϴ	0	N	38.3	ND (5)	35.5	5.9	8.46	27.4
DTSC-AOC10d-3	01/18/08 ϴ	0	N	38.2	ND (5)	35.4	ND (4.04)	8.48	13.3
SD-04	11/10/15	0 - 1	N	---	---	---	---	8.8	---
	11/10/15	2 - 3	N	---	---	---	---	9	---
Bank 1	03/07/03	0	N	---	---	---	---	8.8	---
L-1	02/20/03	0	N	---	---	---	---	7.5	---
	02/20/03	2	N	---	---	---	---	8.7	---
L-2	02/20/03	0	N	---	---	---	---	8.8	---
	02/20/03	2	N	---	---	---	---	8.7	---
L-2-2	03/05/03	- 2	N	---	---	---	---	8.8	---
L-2-3	03/05/03	- 2	N	---	---	---	---	8.6	---
L-3	02/20/03	0	N	---	---	---	---	8.9	---
	02/20/03	1	N	452 J	ND (700)	452 J	3.71	8.8	7.25
	02/20/03	1.5	N	---	---	---	---	9.4	---
L-3-2	03/05/03	0 - 0.5	N	---	---	---	---	8.8	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
µS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-6g
Sample Results: Pesticides
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				2.1	2.1	2.1	39	86	440	300	300	5	470,000	470,000	470,000	19,000	19,000	19,000	300	440	130	70	320,000	490
Residential Regional Screening Levels [2]:				1,900	2,000	1,900	39	86	1,700	300	300	34	470,000	470,000	470,000	19,000	19,000	19,000	570	1,700	130	70	320,000	490
Residential DTSC-SL [3]:				NE	NE	NE	NE	300	440	300	300	NE	NE	NE	NE	NE	NE	NE	300	440	NE	NE	NE	NE
Ecological Comparison Values [4]:				2.1	2.1	2.1	NE	NE	470	NE	NE	5	NE	NE	NE	NE	NE	NE	NE	470	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC10-20	02/17/16	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	02/25/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10-21	02/25/16	0 - 0.5	N	ND (4) *	ND (4) *	ND (4) *	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (4)	ND (2)	ND (4)	ND (4)	ND (4)	ND (4)	---	ND (2)	ND (2)	ND (2)	ND (2)	ND (10)	ND (100) J
	02/25/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10-22	02/17/16	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	02/17/16	1 - 2	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/17/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/17/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC10-23	02/25/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	02/25/16	1 - 2	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	02/25/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10-25	01/08/17	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/08/17	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC10-3	09/19/08	0 - 0.5	N	ND (2)	ND (2) J	ND (2)	ND (1)	ND (1) J	ND (1) J	ND (1)	ND (1) J	ND (2) J	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2) J	ND (1) J	ND (1)	ND (1) J	ND (1) J	ND (5)	ND (50) J
	09/19/08	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10-5	09/19/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC10-8	08/22/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	08/22/08	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10a-1	10/17/08	0 - 0.5	N	ND (2.1) J*	ND (2.1) J*	ND (2.1) J*	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (2.1) J	ND (1.1) J	ND (2.1) J	ND (2.1) J	ND (2.1) J	ND (2.1) J	ND (2.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (1.1) J	ND (5.3) J	ND (53) J
AOC10a-2	01/13/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	01/13/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC10a-3	01/13/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/13/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/13/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC10b-1	09/30/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10c-1	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10c-2	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10d-2	09/17/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1) J	ND (1)	ND (1) J	ND (1) J	ND (2) J	ND (1)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2) J	ND (1) J	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC10d-3	09/17/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

[1] Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

[5] Background values have not been established for pesticides.

TABLE 3-6h
Sample Results: Polychlorinated Biphenyls
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC10-10	01/22/16	0 - 1	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (25.5)
	01/22/16	2 - 3	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (27)
	01/22/16	5 - 6	N	ND (18) J	ND (35) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (27)
AOC10-11	01/22/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/22/16	0 - 1	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/22/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/22/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/22/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-12	01/22/16	0 - 0.5	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (25.5)
	01/22/16	2 - 3	N	ND (17) J	ND (35) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (25.5)
	01/22/16	5 - 6	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (25.5)
AOC10-15	12/15/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	990 J	ND (17)	---	---	1,007
	12/15/15	0 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	470 J	ND (17)	---	---	487
	12/15/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	320	470	ND (17)	---	---	798.5
	12/15/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	220	ND (17)	---	---	237
	12/15/15	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-16	12/15/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	12/15/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	12/15/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	12/15/15	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-18	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	12/06/15	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-20	02/17/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	02/25/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)

TABLE 3-6h
Sample Results: Polychlorinated Biphenyls
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC10-21	02/25/16	0 - 0.5	N	ND (33)	ND (66)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	---	---	ND (49.5)
	02/25/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-22	02/17/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	02/17/16	1 - 2	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (27)
	02/17/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	02/17/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-23	02/25/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	110	ND (17)	---	---	127
	02/25/16	1 - 2	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	02/25/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-25	01/08/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/08/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/08/17	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/08/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/08/17	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10-26	02/21/17	0 - 0.5	N	ND (20) J	ND (41) J	ND (20) J	ND (20) J	ND (20) J	22 J	ND (20) J	---	---	42
	02/21/17	2 - 3	N	ND (21) J	ND (42) J	ND (21) J	ND (21) J	ND (21) J	ND (21) J	ND (21) J	---	---	ND (31.5)
	02/21/17	4.5 - 5	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (27)
AOC10-3	09/19/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (25.5)
	09/19/08	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (25.5)
AOC10-5	09/19/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	49	ND (17)	ND (17)	ND (17)	66
	09/19/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	33 J	ND (17) J	ND (17) J	ND (17) J	50
AOC10-8	08/22/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (25.5)
	08/22/08	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (25.5)
AOC10a-1	10/17/08	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	71	ND (18)	ND (18)	ND (18)	89

TABLE 3-6h
Sample Results: Polychlorinated Biphenyls
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC10a-2	01/13/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	63	38	---	---	109.5
	01/13/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/13/16	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/13/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10a-3	01/13/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/13/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	130	85	---	---	223.5
	01/13/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
	01/13/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (25.5)
AOC10a-4	01/08/17	0 - 0.5	N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	ND (27)
	01/08/17	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (25.5)
AOC10b-1	09/30/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (25.5)
AOC10c-1	10/01/08	0 - 0.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (24)
AOC10c-2	10/01/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	58	ND (17)	ND (17)	ND (17)	75
	10/01/08	2 - 3	N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	68 J	ND (17) J	ND (17) J	ND (17) J	85
	10/01/08	2 - 3	FD	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	46 J	ND (17) J	ND (17) J	ND (17) J	63
AOC10c-6	01/21/16	14 - 15	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (25.5)
AOC10d-2	09/17/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	20	ND (17)	ND (17)	ND (17)	37
	09/17/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (25.5)
AOC10d-3	09/17/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	36
	09/18/08	2 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (25.5)
AOC10d-9	12/15/15	0 - 1	N	17 R	33 R	17 R	17 R	17 R	17 R	17 R	---	---	25.5 R
	12/15/15	2 - 3	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	---	---	25.5 R
	12/15/15	9 - 10	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	---	---	25.5 R
PA-06	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-6h

Sample Results: Polychlorinated Biphenyls
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level[1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels[2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background[5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
PA-18	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	450	ND (17)	---	---	475.5
	01/26/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	---	---	55.5
	01/26/17	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	---	---	55.5
PA-19	01/27/16	0 - 1	N	ND (19) J	ND (38) J	ND (19) J	ND (19) J	ND (19) J	28 J	ND (19) J	---	---	56.5
	01/31/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-20	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	83	60	---	---	160
	01/31/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-21	01/27/16	0 - 1	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	82	55 J	---	---	154
	01/31/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-01	01/13/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/13/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/13/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/13/16	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
SD-02	11/10/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	67	84	---	---	168
SD-03	11/10/15	0 - 1	N	ND (17) J	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (34)
	11/10/15	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
SD-04	11/10/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-05	11/10/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	53	40	ND (17)	ND (17)	110
	11/10/15	0 - 1	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	53	37	ND (17)	ND (17)	107
	11/10/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-06	11/10/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-6h

Sample Results: Polychlorinated Biphenyls
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
SD-21	03/10/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	03/10/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-22	03/09/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	36	ND (17)	---	---	61.5
	03/09/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-6i
Sample Results: Dioxins and Furans
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
Category 1																							
AOC10-10	01/22/16	0 - 1	N	650	79	6.7 J	4.9 J	ND (2.3)	17	ND (3.9)	13	ND (1.6)	ND (2.1)	ND (1)	ND (110)	ND (1)	ND (0.23)	ND (0.13)	6,300	190	12	20	20
	01/22/16	2 - 3	N	ND (6.9)	ND (2)	ND (1.8)	ND (0.52)	ND (0.23)	ND (0.4)	ND (0.23)	ND (0.57)	1.3 J	ND (0.25)	ND (0.11)	ND (0.87)	ND (0.11)	ND (0.16)	ND (0.081)	31	ND (6.7)	0.57	0.56	0.56
	01/22/16	5 - 6	N	ND (8.4)	ND (1.8)	4.9 J	ND (0.14)	ND (0.14)	ND (0.12)	ND (0.13)	1.2 J	1.4 J	ND (0.27)	ND (0.14)	ND (0.2)	ND (0.071)	ND (0.043)	ND (0.13)	50	ND (5.1)	0.62	0.59	0.59
AOC10-11	01/22/16	0 - 1	N	550 J	47	6.1 J	ND (2.5)	ND (0.93)	14	ND (0.93)	5.5 J	ND (1.1)	0.74 J	ND (0.33)	ND (160)	ND (0.62)	ND (0.11)	ND (0.13)	3,500 J	170 J	12	18	18
	01/22/16	0 - 1	FD	190 J	23	ND (1.3)	ND (1.5)	ND (0.63)	8.6 J	ND (11)	3.4 J	ND (0.74)	ND (0.58)	ND (0.53)	ND (140)	ND (0.57)	ND (0.077)	ND (0.088)	1,100 J	65 J	9.3	12	12
	01/22/16	2 - 3	N	590	46	5 J	ND (2.1)	ND (1.2)	13	ND (11)	ND (5.4)	ND (0.42)	ND (0.68)	ND (1)	ND (140)	ND (1.1)	ND (0.077)	ND (0.22)	4,800	190	11	18	18
	01/22/16	5 - 6	N	3,500	760	ND (110)	15	ND (6.8)	150	ND (6.3)	32	ND (7.9)	3.7 J	ND (0.55)	ND (2,400)	ND (2.8)	ND (0.28)	ND (0.33)	33,000	2,700	150	200	200
	01/22/16	9 - 10	N	170	ND (3.8)	ND (0.54)	4.5 J	ND (0.24)	ND (0.38)	ND (2.2)	ND (0.99)	ND (0.28)	ND (0.25)	ND (0.15)	ND (23)	ND (0.16)	ND (0.093)	ND (0.066)	1,100	15 J	2.2	4.1	4.1
AOC10-12	01/22/16	0 - 0.5	N	770	ND (1.9)	ND (6.2)	ND (4.7)	ND (3.4)	48	32	25	ND (3.9)	ND (3.3)	ND (2.1)	ND (380)	ND (2.1)	ND (0.34)	ND (0.88)	4,800	310	30	42	42
	01/22/16	2 - 3	N	540	57	3.8 J	ND (2)	5.6 J	19	3.7 J	ND (1.7)	ND (1.6)	ND (1.4)	ND (1.4)	ND (130)	3 J	ND (0.32)	ND (0.51)	6,100	110	14	19	19
	01/22/16	5 - 6	N	320	ND (18)	ND (21)	ND (3.8)	5.8 J	21	18	18	ND (2.4)	ND (4.3)	2.1 J	ND (100)	3 J	ND (0.35)	ND (1)	1,400	55	16	19	19
AOC10-15	12/15/15	0 - 1	N	9,000	630	ND (96)	33	ND (19)	210	ND (17)	59	ND (22)	ND (12) *	ND (11)	ND (2,300)	ND (16)	4.1 J	ND (8.6)	110,000	2,600	180	290	290
	12/15/15	0 - 1	FD	8,200	650	72	30	62	190	17	56	ND (2.8)	ND (11) *	ND (8.2)	ND (2,000)	ND (8.8)	ND (2.5)	8.2	110,000	2,100	160	270	270
	12/15/15	2 - 3	N	3,100	230	ND (18)	14	26	85	ND (8.1)	27	ND (10)	8.4 J	ND (3.3)	ND (820)	ND (7.8)	ND (2.4)	ND (4.5)	38,000	920	74	110	110
	12/15/15	5 - 6	N	2,300	180	21	9.3 J	ND (9.4)	55	ND (5)	19	ND (6.3)	ND (4)	ND (4.4)	ND (570)	ND (4.7)	ND (2.3)	3.1 J	31,000	700	49	77	77
	12/15/15	9 - 10	N	34	ND (3.1)	ND (1.5)	ND (1.1)	1.4 J	ND (1.9)	1.3 J	ND (1.7)	ND (1.1)	ND (1.1)	ND (1.4)	ND (11)	ND (0.47)	ND (1.3)	ND (1.2)	340	10 J	3.2	2.9	2.9
AOC10-16	12/15/15	0 - 1	N	23	ND (1.8)	ND (1.7)	1.6 J	ND (1.3)	2.3 J	ND (0.66)	ND (0.76)	ND (0.83)	ND (0.85)	ND (1.4)	ND (1)	ND (0.48)	ND (0.36)	ND (0.86)	110	ND (1.9)	1.7	1.6	1.6
	12/15/15	2 - 3	N	40	ND (4.2)	1.5 J	ND (0.69)	1 J	ND (2.3)	ND (1.1)	2.7 J	ND (0.63)	1.4 J	ND (1.1)	ND (7.2)	ND (1.1)	ND (1.5)	1.6 J	240	ND (5)	5.3	4	4
	12/15/15	5 - 6	N	22	ND (6.6)	ND (1)	1.6 J	1.3 J	2.2 J	2.1 J	ND (0.95)	ND (0.42)	ND (1.2)	1.2 J	ND (12)	ND (0.7)	ND (0.17)	ND (1.1)	89	ND (4.9)	2.9	2.6	2.6
	12/15/15	9 - 10	N	6.9 J	ND (2)	ND (1)	ND (0.74)	1.2 J	ND (1.4)	ND (1)	ND (0.62)	ND (0.79)	ND (0.38)	ND (0.41)	ND (0.88)	ND (1)	ND (1.5)	ND (1.1)	ND (25)	2.6 J	2.3	1.6	1.6
AOC10-18	12/06/15	0 - 1	N	24	ND (2.5)	ND (0.92)	ND (1)	ND (0.8)	1.5 J	ND (0.81)	1.6 J	ND (0.57)	ND (0.2)	0.82 J	0.56 J	0.77 J	0.6 J	0.46 J	190	4.3 J	2.4	1.8	1.8
	12/06/15	2 - 3	N	ND (4.8)	ND (1.2)	ND (0.8)	ND (0.98)	ND (0.23)	0.97 J	ND (0.61)	ND (0.75)	0.79 J	0.8 J	ND (0.84)	0.7 J	0.86 J	ND (0.26)	0.45 J	30	2 J	2.6	1.7	1.7
AOC10-19	02/24/16	0 - 1	N	83 J	6.3 J	ND (0.41) J	ND (0.47) J	ND (0.4) J	2.3 J	ND (0.37) J	1.2 J	ND (0.44) J	0.31 J	ND (0.19) J	ND (6) J	ND (0.091) J	ND (0.067) J	ND (0.27) J	820 J	14 J	1.3	2.3	2.3
	02/24/16	2 - 3	N	180 J	13 J	ND (0.98) J	1.7 J	ND (0.89) J	4.8 J	1 J	2.4 J	ND (0.12) J	ND (0.29) J	ND (0.088) J	ND (10) J	ND (0.34) J	ND (0.11) J	ND (0.22) J	1,600 J	25 J	2	4.2	4.2
AOC10-20	02/17/16	0 - 0.5	N	ND (5.5)	ND (0.83)	ND (1.1)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.17)	ND (0.35)	ND (0.5)	ND (0.12)	ND (0.17)	ND (0.15)	ND (0.17)	ND (0.11)	ND (0.13)	35 J	ND (3)	0.36	0.28	0.28
	02/25/16	2 - 3	N	1.2 J	ND (0.35)	ND (0.086)	ND (0.044)	ND (0.12)	ND (0.038)	ND (0.1)	ND (0.059)	ND (0.13)	ND (0.047)	ND (0.11)	ND (0.24)	ND (0.27)	ND (0.051)	ND (0.064)	ND (8.9)	ND (0.21)	0.26	0.15	0.15
AOC10-21	02/25/16	0 - 0.5	N	1,700	270	ND (11)	ND (25)	ND (6.9)	ND (39)	ND (6.8)	ND (14)	ND (8.1)	ND (35) *	ND (2.9)	ND (7.2)	ND (3.1)	ND (2.6)	ND (5.2) J	26,000	250	33	53	53
	02/25/16	2 - 3	N	2.6 J	ND (0.41)	ND (0.082)	ND (0.088)	ND (0.18)	ND (0.076)	ND (0.16)	ND (0.1)	ND (0.2)	ND (0.071)	ND (0.27)	ND (0.18)	ND (0.27)	ND (0.11)	ND (0.078)	ND (22)	ND (0.72)	0.33	0.22	0.22
AOC10-22	02/17/16	0 - 0.5	N	800	ND (4.2)	ND (5)	ND (3.3)	ND (5.2)	21	ND (6.7)	ND (2.1)	ND (4.7)	ND (3.1)	ND (2.3)	ND (4.2)	ND (2.4)	ND (2)	ND (3.7)	6,400	90	8.6	17	17
	02/17/16	1 - 2	N	2,100	ND (0.79)	11 J	12 J	12 J	49	6.8 J	23	2.9 J	ND (5.4) *	ND (1.4)	ND (160)	4.9 J	1 J	1.8 J	9,000	240	27	48	48
	02/17/16	2 - 3	N	770	ND (280)	ND (14)	9.6 J	ND (7.1)	22	ND (13)	ND (1.4)	ND (2.1)	ND (2.9)	ND (1.9)	ND (120)	3.9 J	ND (0.89)	ND (1.4)	7,100	ND (5.5)	17	25	25
	02/17/16	5 - 6	N	7.9 J	ND (1.1)	ND (0.29)	ND (0.16)	ND (0.094)	ND (0.33)	ND (0.13)	ND (0.25)	ND (0.31)	ND (0.075)	ND (0.11)	ND (0.83)	ND (0.053)	ND (0.04)	ND (0.18)	51	1.7 J	0.29	0.28	0.28

TABLE 3-6i
Sample Results: Dioxins and Furans
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC10-23	02/25/16	0 - 1	N	63,000	2,300 J	120 J	ND (31) J	ND (45) J	980 J	110 J	140 J	ND (51) J	ND (21) J*	ND (7.9) J	ND (3,300) J	100 J	2.7 J	ND (25) J	230,000	11,000 J	440	1,100	1,100
	02/25/16	1 - 2	N	230	ND (150)	ND (3.8)	ND (3.1)	ND (3)	10 J	ND (6)	ND (3)	ND (2)	ND (5.1) *	ND (0.54)	ND (1.7)	ND (2.1)	ND (0.46)	ND (0.63)	2,000	94	6.3	8.8	8.8
	02/25/16	2 - 3	N	890	34	ND (5.7)	ND (0.68)	4.1 J	13	1.9 J	ND (3.8)	ND (1.9)	ND (0.62)	1.1 J	ND (64)	2 J	ND (0.38)	1.2 J	4,300	55	9.7	17	17
AOC10-24	03/07/16	0 - 1	N	590	41	ND (2.4)	6.5 J	ND (0.26)	17	2.5 J	11 J	ND (1)	3.4 J	ND (0.32)	ND (96)	2.6 J	ND (0.41)	ND (1.2)	5,300	130	15	21	21
	03/07/16	2 - 3	N	3,000	ND (37)	ND (44)	22	ND (23)	140	ND (23)	49	ND (27)	8.1 J	4.7 J	ND (2,300)	7.9 J	0.22 J	1 J	28,000	2,100	150	190	190
AOC10-25	01/08/17	0 - 0.5	N	30 J	ND (2.4)	ND (0.59)	ND (0.25)	ND (0.35)	ND (0.75)	ND (0.31)	0.63 J	ND (0.63)	ND (0.16)	ND (0.31)	ND (3.8)	ND (0.66)	ND (0.054)	ND (0.13)	200 J	ND (4.5)	0.91	0.96	0.96
	01/08/17	0 - 0.5	FD	130 J	ND (11)	ND (1.4)	ND (2.8)	ND (0.62)	ND (0.66)	ND (1.7)	ND (0.68)	ND (0.7)	ND (0.53)	ND (0.8)	8 J	ND (5.2)	ND (0.2)	1.5 J	1,500 J	29	5.9	4.3	4.3
	01/08/17	2 - 3	N	ND (0.24)	ND (1.1)	ND (0.73)	ND (0.34)	ND (0.16)	ND (0.54)	ND (0.28)	ND (0.41)	ND (0.7)	ND (0.14)	ND (0.1)	ND (0.51)	ND (0.14)	ND (0.14)	ND (0.41)	ND (41)	ND (1.6)	ND (0.55)	ND (0.35)	ND (0.35)
	01/08/17	5 - 6	N	ND (2.3)	ND (0.23)	ND (1.3)	ND (0.47)	ND (0.26)	ND (0.27)	ND (0.56)	ND (0.55)	1 J	ND (0.5)	ND (0.097)	0.73 J	ND (0.1)	ND (0.064)	ND (0.095)	ND (18)	ND (1.8)	0.65	0.6	0.6
	01/08/17	9 - 10	N	2.2 J	ND (0.49)	ND (0.56)	ND (0.3)	ND (0.13)	ND (0.22)	ND (0.12)	ND (0.11)	ND (0.39)	ND (0.14)	ND (0.076)	ND (0.36)	ND (0.2)	ND (0.12)	ND (0.082)	ND (14)	ND (1.7)	0.35	0.28	0.28
AOC10-26	02/21/17	0 - 0.5	N	220	21	2.6 J	3 J	ND (1.2)	7.8 J	1.3 J	4.9 J	ND (0.2)	1.7 J	0.51 J	ND (50)	1.8 J	ND (0.15)	ND (0.39)	1,500	41	7.8	9.5	9.5
	02/21/17	2 - 3	N	1,200	170	17	13	8 J	49	28	24	ND (2.5)	5.6 J	3 J	ND (910)	ND (3.7)	ND (0.04)	ND (0.1)	6,500	250	64	80	80
	02/21/17	2 - 3	FD	3,400	410	44	29	19	120	60	57	5.6 J	13	5.1 J	ND (1,900)	6.7 J	ND (0.16)	1.1 J	16,000	610	140	180	180
	02/21/17	2.5 - 2.7	N	9,300	1,100	110	73	48	300	120	140	13	28	ND (8.9)	ND (3,800)	13	ND (0.17)	0.75 J	54,000	2,000	300	410	410
	02/21/17	4.5 - 5	N	1,800	440	36	11 J	12 J	80	15	25	3.9 J	ND (5.7) *	2.5 J	ND (1,100)	12 J	ND (0.1)	1.1 J	15,000	830	86	100	100
AOC10-27	01/04/17	0 - 0.5	N	450	44	ND (4.4)	ND (3.4)	ND (6.3)	12 J	ND (5.5)	7.9 J	ND (7.2)	ND (1.1)	ND (2)	ND (6.5)	7.7 J	ND (0.14)	ND (0.71)	6,100	71	13	13	13
	01/04/17	2 - 3	N	260	36	4.6 J	3.3 J	ND (2.3)	9.9 J	5.7 J	5.3 J	ND (1.7)	ND (1.8)	ND (1.4)	ND (100)	ND (5)	ND (0.2)	ND (0.47)	1,800	72	11	13	13
	01/04/17	4 - 5	N	30	6.8 J	ND (1.2)	ND (0.22)	ND (0.3)	ND (0.22)	ND (0.59)	ND (0.22)	ND (0.36)	ND (0.21)	ND (0.3)	ND (18)	ND (0.32)	ND (0.13)	ND (0.25)	260	17 J	1.6	1.7	1.7
AOC10-6	09/20/08	0 - 0.5	N	170 J	13 J	ND (1.7) J	2.2 J	ND (1) J	4.5 J	ND (1.4) J	3.4 J	ND (0.75) J	ND (0.26) J	ND (0.34) J	ND (17) J	1.9 J	ND (0.099) J	ND (0.39) J	1,800 J	ND (28)	4.3	5.2	5.2
	09/20/08	2 - 3	N	ND (6.3) J	ND (1.4) J	ND (1.7) J	ND (1.3) J	ND (2) J	ND (1.6) J	ND (1.8) J	ND (1.6) J	ND (2.3) J	ND (1.5) J	ND (1.4) J	ND (2) J	ND (1.4) J	ND (1.1) J	ND (1.6) J	ND (5) J	ND (5.9) J	ND (3.4)	ND (2.3)	ND (2.3)
AOC10a-2	01/13/16	0 - 1	N	650 J	38 J	ND (2.2) J	7.2 J	3.2 J	17 J	ND (3.8) J	ND (10) J	ND (0.76) J	ND (2.8) J	3.3 J	ND (49) J	ND (0.85) J	ND (0.18) J	0.89 J	6,600 J	66 J	8.9	17	17
	01/13/16	2 - 3	N	ND (2.5) J	ND (0.24) J	ND (0.2) J	ND (0.21) J	ND (0.062) J	ND (0.14) J	ND (0.058) J	ND (0.15) J	ND (0.075) J	ND (0.093) J	ND (0.083) J	ND (0.53) J	ND (0.088) J	ND (0.066) J	ND (0.097) J	ND (18) J	ND (0.36) J	ND (0.23)	ND (0.18)	ND (0.18)
AOC10a-3	01/13/16	0 - 1	N	2,700	550	ND (87)	ND (5.1)	ND (9.7)	100	ND (8.5)	31	ND (11)	7.3 J	ND (1)	ND (1,200)	4 J	ND (0.22)	ND (0.38)	22,000	1,200	88	120	120
	01/13/16	2 - 3	N	5,400	660	ND (76)	18	ND (15)	110	ND (13)	43	ND (17)	8 J	ND (2.7)	ND (1,000)	ND (3.5)	0.66 J	2.3 J	44,000	2,200	88	150	150
	01/13/16	5 - 6	N	ND (9.5)	ND (1.3)	ND (0.52)	ND (0.39)	ND (0.67)	ND (0.24)	ND (0.59)	ND (0.25)	ND (1.6)	ND (0.15)	ND (0.2)	ND (0.67)	ND (0.13)	ND (0.15)	ND (0.092)	75	ND (2.3)	0.49	0.48	0.48
	01/13/16	9 - 10	N	ND (4.8)	ND (0.52)	ND (0.22)	ND (0.12)	ND (0.4)	ND (0.15)	ND (0.35)	ND (0.16)	ND (0.45)	ND (0.21)	ND (0.1)	ND (0.65)	ND (0.11)	ND (0.14)	ND (0.29)	34	ND (1.8)	0.49	0.36	0.36
AOC10a-4	01/08/17	0 - 0.5	N	770	62	5.5 J	ND (5)	3.7 J	17	ND (1.6)	8.5 J	ND (1.3)	2.2 J	ND (1)	ND (120)	1.3 J	ND (0.11)	ND (0.65)	8,400	150	14	23	23
	01/08/17	2 - 3	N	4.6 J	1 J	ND (0.26)	ND (0.16)	ND (0.13)	ND (0.23)	ND (0.13)	ND (0.61)	ND (0.2)	ND (0.2)	ND (0.21)	ND (0.66)	ND (0.079)	ND (0.061)	ND (0.085)	43	ND (1.9)	0.33	0.33	0.33
AOC10b-1	09/30/08	0 - 0.5	N	820 J	88 J	ND (5.3) J	5.8 J	ND (2.2) J	20 J	ND (4.1) J	12 J	ND (2.5) J	2.7 J	ND (0.59) J	ND (100) J	ND (0.59) J	ND (0.14) J	ND (0.36) J	7,900 J	230 J	13	24	24
	09/30/08	2 - 3	N	4,600 J	980 J	ND (83) J	33 J	25 J	170 J	42 J	67 J	ND (9.6) J	16 J	ND (1.7) J	ND (1,700) J	ND (5.7) J	ND (0.62) J	ND (1.6) J	38,000 J	1,800 J	140	200	200
	09/30/08	5 - 6	N	2,600 J	650 J	56 J	27 J	ND (11) J	ND (1.2) J	ND (56) J	54 J	ND (12) J	15 J	ND (8.3) J	ND (1,600) J	ND (8.3) J	ND (0.17) J	ND (0.38) J	17,000 J	930 J	120	150	150

TABLE 3-6i

Sample Results: Dioxins and Furans
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC10c-4	10/01/08	0 - 0.5	N	10,000 J	1,600 J	120 J	73 J	ND (100) J	330 J	ND (92) J	150 J	ND (120) J	ND (1.7) J	ND (3.6) J	ND (2,600) J	ND (14) J	2.4 J	6.9 J	110,000 J	3,400 J	220	360	360
	10/01/08	2 - 3	N	1,700 J	280 J	21 J	12 J	8.6 J	54 J	16 J	24 J	ND (2.6) J	ND (5.1) J*	ND (1.2) J	ND (530) J	ND (1.2) J	ND (0.23) J	1.4 J	15,000 J	580 J	44	66	66
	10/01/08	5 - 6	N	74 J	10 J	ND (0.4) J	ND (2.2) J	ND (0.46) J	ND (0.38) J	ND (0.41) J	1.2 J	ND (0.53) J	0.22 J	ND (0.12) J	ND (30) J	ND (0.12) J	ND (0.058) J	ND (0.091) J	550 J	12 J	2.3	3.1	3.1
AOC10c-6	01/21/16	14 - 15	N	320	19	ND (4.7)	ND (2)	ND (1.1)	9.6 J	3.7 J	4.3 J	ND (1.2)	ND (0.26)	ND (0.28)	ND (110)	ND (0.3)	ND (0.11)	ND (0.39)	3,300	39	8	12	12
AOC10d-9	12/15/15	0 - 1	N	40 J	ND (2.9) J	ND (0.49) J	ND (0.88) J	ND (0.22) J	1.4 J	ND (0.4) J	1.4 J	ND (0.25) J	ND (0.13) J	ND (0.31) J	ND (2.7) J	ND (0.32) J	ND (0.13) J	ND (0.3) J	300 J	6.4 J	0.9	1.2	1.2
	12/15/15	2 - 3	N	ND (1.6) J	ND (0.14) J	ND (0.14) J	ND (0.19) J	ND (0.13) J	ND (0.17) J	ND (0.11) J	ND (0.18) J	ND (0.15) J	ND (0.087) J	ND (0.26) J	ND (0.21) J	ND (0.28) J	ND (0.071) J	ND (0.14) J	13 J	ND (0.33) J	0.35	0.2	0.2
	12/15/15	5 - 6	N	ND (2.2) J	ND (1.1) J	ND (0.93) J	ND (0.2) J	ND (0.12) J	ND (0.19) J	ND (0.1) J	ND (0.28) J	ND (0.084) J	ND (0.32) J	ND (0.16) J	0.61 J	ND (0.17) J	ND (0.068) J	ND (0.082) J	11 J	ND (1.5) J	0.44	0.36	0.36
	12/15/15	9 - 10	N	ND (0.17) J	ND (0.097) J	ND (0.11) J	ND (0.088) J	ND (0.14) J	ND (0.077) J	ND (0.12) J	ND (0.083) J	ND (0.16) J	ND (0.068) J	ND (0.15) J	ND (0.14) J	ND (0.15) J	ND (0.074) J	ND (0.12) J	ND (1.4) J	ND (0.21) J	ND (0.25)	ND (0.14)	ND (0.14)
PA-18	01/27/16	0 - 1	N	11,000 J	760 J	43 J	86 J	41 J	280 J	53 J	140 J	8.6 J	43 J	10 J	ND (470) J	16 J	ND (3.5) J	8.1 J	87,000 J	1,700 J	150	280	280
	01/26/17	5 - 6	N	550	41	3.4 J	2.4 J	2.6 J	13	ND (1.3)	4.7 J	1.1 J	ND (1.2)	ND (0.92)	ND (76)	ND (1.1)	ND (0.099)	ND (0.69)	4,500	84	8	14	14
PA-19	01/27/16	0 - 1	N	6,700 J	570 J	ND (35) J	69 J	ND (38) J	190 J	ND (26) J	110 J	ND (4.2) J	48 J	16 J	ND (450) J	14 J	ND (6.1) J*	19 J	71,000 J	2,000 J	150	220	220
	01/31/17	2 - 3	N	2.9 J	ND (0.38)	ND (0.17)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.19)	ND (0.22)	ND (0.25)	ND (0.54)	ND (0.4)	ND (1.2)	ND (0.41)	ND (0.18)	ND (0.49)	32	ND (0.94)	0.95	0.62	0.62
	01/31/17	5 - 6	N	16	2.1 J	0.29 J	ND (0.45)	ND (0.079)	0.6 J	ND (0.071)	0.38 J	ND (0.091)	ND (0.33)	ND (0.31)	ND (2.4)	ND (0.2)	ND (0.27)	0.81 J	130	3.5 J	1.5	0.89	0.89
PA-20	01/27/16	0 - 1	N	55,000 J	4,700 J	240 J	140 J	550 J	1,900 J	130 J	260 J	170 J	44 J	120 J	ND (7,400) J	270 J	ND (10) J*	77 J	440,000 J	13,000 J	1,100	1,600	1,600
	01/31/17	2 - 3	N	2,400	100	ND (5.3)	ND (2.1)	10 J	42	2.8 J	6.9 J	4.1 J	ND (1)	2.4 J	ND (190)	6.1 J	ND (0.25)	ND (1.7)	29,000	220	27	53	53
	01/31/17	5 - 6	N	6,200	240	14	3.7 J	30	92	7.5 J	12 J	12 J	ND (1.2)	5.4 J	ND (460)	13	ND (0.14)	3.5 J	64,000	430	63	130	130
PA-21	01/27/16	0 - 1	N	25,000 J	1,300 J	65 J	79 J	150 J	550 J	ND (46) J	120 J	45 J	30 J	42 J	ND (1,800) J	66 J	3.7 J	23 J	250,000 J	3,100 J	320	580	580
	01/31/17	2 - 3	N	590	24	ND (1.4)	ND (0.77)	2.9 J	11 J	0.83 J	ND (1.2)	ND (1.3)	ND (0.24)	ND (1.3)	ND (58)	2.8 J	ND (0.17)	1.5 J	5,300	47	9.5	14	14
	01/31/17	5 - 6	N	3,400	130	ND (7.3)	4.3 J	16	56	4.7 J	11 J	6.2 J	2.2 J	ND (5.9)	ND (270)	ND (7.6)	ND (0.46)	5.1	32,000	270	38	73	73
SD-21	03/10/16	0 - 1	N	31	ND (2.3)	ND (0.32)	ND (0.45)	ND (0.34)	ND (1.5)	ND (0.31)	ND (0.46)	ND (0.39)	ND (0.54)	ND (0.23)	ND (2.9)	ND (0.23)	ND (0.53)	ND (0.14)	270	4.4 J	1	1.3	1.3
	03/10/16	2 - 3	N	110	8.5 J	ND (0.4)	1.6 J	ND (0.39)	3.6 J	ND (0.46)	ND (2.3)	ND (0.27)	ND (0.65)	ND (0.16)	ND (8.6)	ND (0.42)	ND (0.11)	ND (0.25)	920	12 J	1.7	3	3

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the Interim Screening Level are circled.

ϴ	white powder sample.
--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample

TABLE 3-6i

Sample Results: Dioxins and Furans
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-6j

Constituent Concentrations in Soil Compared to Screening Values
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	28	75 / 79 (95%)	1,100	43	(5.98)	26	(16)	NA	(NE)	NA	(NA)	NA	(NE)	26	(16)
TEQ Human	ng/kg	28	75 / 79 (95%)	1,600	43	(5.58)	NA	(NE)	22	(50)	NA	(NA)	7	(220)	22	(50)
TEQ Mammals	ng/kg	28	75 / 79 (95%)	1,600	43	(5.58)	43	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	43	(5.58)
Metals																
Antimony	mg/kg	57	1 / 172 (0.58%)	15	NA	(NE)	1	(0.285)	0	(31)	NA	(NA)	0	(470)	1	(0.285)
Arsenic	mg/kg	57	169 / 172 (98%)	17	5	(11)	5	(11.4)	5	(0.11) *	NA	(NA)	5	(0.36) *	5	(11)
Barium	mg/kg	57	172 / 172 (100%)	1,300	3	(410)	3	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	3	(410)
Beryllium	mg/kg	57	0 / 172 (0%)	ND (5.2) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	57	5 / 172 (2.9%)	7.4	4	(1.1)	4	(0.0151) *	1	(5.2)	NA	(NA)	1	(7.3)	4	(1.1)
Chromium, Hexavalent	mg/kg	73	91 / 195 (47%)	2,700	54	(0.83)	2	(139.6)	54	(0.3)	NA	(NA)	14	(6.3)	54	(0.83)
Chromium, Hexavalent-SPLP	mg/L	4	4 / 4 (100%)	0.128	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Chromium, total	mg/kg	74	199 / 199 (100%)	4,000	66	(39.8)	66	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	66	(39.8)
Chromium-SPLP	mg/L	4	4 / 4 (100%)	0.139	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Cobalt	mg/kg	57	172 / 172 (100%)	36	4	(12.7)	2	(13)	2	(23)	NA	(NA)	0	(350)	4	(12.7)
Copper	mg/kg	66	186 / 186 (100%)	3,100	65	(16.8)	50	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	65	(16.8)
Lead	mg/kg	57	171 / 172 (99%)	920	56	(8.39)	56	(0.0166) *	4	(80)	NA	(NA)	1	(320)	56	(8.39)
Mercury	mg/kg	57	11 / 172 (6.4%)	35	NA	(NE)	11	(0.0125)	2	(1)	NA	(NA)	1	(4.5)	11	(0.0125)
Molybdenum	mg/kg	60	34 / 175 (19%)	19	25	(1.37)	16	(2.25)	0	(390)	NA	(NA)	0	(5,800)	25	(1.37)
Nickel	mg/kg	66	186 / 186 (100%)	51	11	(27.3)	11	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	11	(27.3)
Selenium	mg/kg	57	3 / 172 (1.7%)	9.1	2	(1.47)	2	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	2	(1.47)
Silver	mg/kg	57	0 / 172 (0%)	ND (5.2) ‡	NA	(NE)	0	(5.15)	0	(390)	NA	(NA)	0	(1,500)	0	(5.15)
Thallium	mg/kg	57	4 / 172 (2.3%)	6.1	NA	(NE)	4	(2.32)	4	(0.78)	NA	(NA)	0	(12)	4	(0.78)
Vanadium	mg/kg	57	172 / 172 (100%)	52	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	66	186 / 186 (100%)	1,000	64	(58)	64	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	64	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	12	13 / 13 (100%)	18,000	1	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	1	(16,400)
Calcium	mg/kg	13	14 / 14 (100%)	139,000	1	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	1	(66,500)
Iron	mg/kg	13	14 / 14 (100%)	32,000	1	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	1	(29,303)
Magnesium	mg/kg	13	14 / 14 (100%)	12,800	1	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	1	(12,100)
Manganese	mg/kg	12	13 / 13 (100%)	1,300	2	(402)	2	(220)	0	(1,800)	NA	(NA)	0	(6,900)	2	(402)
Potassium	mg/kg	12	13 / 13 (100%)	4,100	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	13	14 / 14 (100%)	1,280	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	11	1 / 12 (8.3%)	0.223	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Volatile Organic Compounds																
Isophorone	µg/kg	37	2 / 109 (1.8%)	2,800	NA	(NE)	NA	(NE)	0	(570,000)	NA	(NA)	0	(2,400,000)	0	(570,000)
Polycyclic Aromatic Hydrocarbons																
1-Methyl naphthalene	µg/kg	58	11 / 174 (6.3%)	81	NA	(NE)	NA	(NE)	0	(18,000)	NA	(NA)	0	(73,000)	0	(18,000)
2-Methyl naphthalene	µg/kg	58	10 / 174 (5.7%)	91	NA	(NE)	NA	(NE)	0	(240,000)	NA	(NA)	0	(3,000,000)	0	(240,000)
Acenaphthene	µg/kg	58	9 / 174 (5.2%)	8.5	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Acenaphthylene	µg/kg	58	10 / 174 (5.7%)	26	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	58	18 / 174 (10%)	95	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)

TABLE 3-6j

Constituent Concentrations in Soil Compared to Screening Values
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
Benzo (a) anthracene	µg/kg	58	53 / 174 (30%)	1,200	NA	(NE)	NA	(NE)	1	(1,100)	NA	(NA)	0	(21,000)	1	(1,100)
Benzo (a) pyrene	µg/kg	58	58 / 174 (33%)	4,400	NA	(NE)	NA	(NE)	9	(110)	NA	(NA)	1	(2,100)	9	(110)
Benzo (b) fluoranthene	µg/kg	58	63 / 174 (36%)	15,000	NA	(NE)	NA	(NE)	5	(1,100)	NA	(NA)	0	(21,000)	5	(1,100)
Benzo (ghi) perylene	µg/kg	58	55 / 174 (32%)	1,400	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	58	56 / 174 (32%)	5,800	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	58	68 / 174 (39%)	5,200	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	58	25 / 174 (14%)	340	NA	(NE)	NA	(NE)	1	(110)	NA	(NA)	0	(2,100)	1	(110)
Fluoranthene	µg/kg	58	70 / 174 (40%)	2,600	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Fluorene	µg/kg	58	9 / 174 (5.2%)	9.8	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	58	52 / 174 (30%)	1,100	NA	(NE)	NA	(NE)	1	(1,100)	NA	(NA)	0	(21,000)	1	(1,100)
Naphthalene	µg/kg	58	10 / 174 (5.7%)	18	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	58	54 / 174 (31%)	780	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	58	69 / 174 (40%)	2,600	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	58	174 / 174 (100%)	859.3	17	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	58	174 / 174 (100%)	32,900	28	(267.4)	10	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	10	(1,160)
B(a)P Equivalent	µg/kg	58	73 / 174 (42%)	8,200	32	(55)	NA	(NE)	16	(110)	NA	(NA)	2	(2,100)	16	(110)
Polychlorinated biphenyls																
Aroclor 1016	µg/kg	39	3 / 93 (3.2%)	17	NA	(NE)	NA	(NE)	0	(4,100)	NA	(NA)	0	(27,000)	0	(4,100)
Aroclor 1221	µg/kg	39	3 / 93 (3.2%)	34	NA	(NE)	NA	(NE)	0	(200)	NA	(NA)	0	(830)	0	(200)
Aroclor 1232	µg/kg	39	3 / 93 (3.2%)	17	NA	(NE)	NA	(NE)	0	(170)	NA	(NA)	0	(720)	0	(170)
Aroclor 1242	µg/kg	39	3 / 93 (3.2%)	17	NA	(NE)	NA	(NE)	0	(230)	NA	(NA)	0	(950)	0	(230)
Aroclor 1248	µg/kg	39	4 / 93 (4.3%)	320	NA	(NE)	NA	(NE)	1	(230)	NA	(NA)	0	(950)	1	(230)
Aroclor 1254	µg/kg	39	25 / 93 (27%)	990	NA	(NE)	NA	(NE)	3	(240)	NA	(NA)	1	(970)	3	(240)
Aroclor 1260	µg/kg	39	9 / 93 (9.7%)	85	NA	(NE)	NA	(NE)	0	(240)	NA	(NA)	0	(990)	0	(240)
Total PCBs	µg/kg	39	25 / 93 (27%)	1,007	NA	(NE)	5	(204)	4	(230)	NA	(NA)	1	(940)	5	(204)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	43	19 / 123 (15%)	4,000	NA	(NE)	NA	(NE)	5	(230)	5	(230)	3	(1,100)	5	(230)
TPH as motor oil	mg/kg	43	62 / 123 (50%)	8,900	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-6j

Constituent Concentrations in Soil Compared to Screening Values
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-6k

Sample Results: Metals in Sediment
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				NE	9.79	410	0.672	0.99	0.83	43.4	12.7	31.6	35.8	0.18	1.37	22.7	1.47	NE	NE	52.2	121
Soil Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Consensus-based Threshold effect concentration [3]				NE	9.79	NE	NE	0.99	NE	43.4	NE	31.6	35.8	0.18	NE	22.7	NE	NE	NE	NE	121
Consensus-based Probable effect concentration [3]				NE	33	NE	NE	4.98	NE	111	NE	149	128	1.06	NE	48.6	NE	NE	NE	NE	459
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
ERPW-1	01/28/16 Δ	0 - 0.5	N	ND (4) *	5.9	200	ND (2) *	ND (2) *	ND (0.4)	18	6.9	9.4	17	ND (0.2) *	ND (2) *	12	ND (2) *	ND (2)	ND (4) *	32	110
	01/28/16 Δ	1 - 1.5	N	ND (2.6) *	5.2	90	ND (1.3) *	ND (1.3) *	ND (0.26)	15	5.2	6.7	18	ND (0.13) *	ND (1.3)	9.2	ND (1.3)	ND (1.3)	ND (2.6) *	23	95
	01/28/16 Δ	1.5 - 2	N	ND (2.6) *	4.9	99	ND (1.3) *	ND (1.3) *	ND (0.26) J	11	5.9	6.2	19	ND (0.13) *	ND (1.3)	9.2	ND (1.3)	ND (1.3)	ND (2.6) *	24	95
ERPW-10	01/24/16 Δ	0 - 0.5	N	ND (3) *	10	500	ND (1.5) *	ND (1.5) *	ND (0.3)	34	10	44	18	ND (0.15) *	ND (1.5) *	22	ND (1.5) *	ND (1.5)	ND (3) *	53	120
	01/24/16 Δ	1 - 1.5	N	ND (2.6) *	21	280	ND (1.3) *	ND (1.3) *	ND (0.26)	20	11	24	21	ND (0.13) *	2	17	ND (1.3)	ND (1.3)	ND (2.6) *	42	68
	01/24/16 Δ	1.5 - 2	N	ND (2.6) *	5.8	290	ND (1.3) *	ND (1.3) *	ND (0.26)	17	5.3	18	15	ND (0.13) *	ND (1.3)	11	ND (1.3)	ND (1.3)	ND (2.6) *	28	54
ERPW-2	01/25/16 Δ	0 - 0.5	N	ND (2.8) *	3.6	110	ND (1.4) *	ND (1.4) *	ND (0.28)	4.3	1.6	3.7	6	ND (0.14) *	ND (1.4) *	3.3	ND (1.4)	ND (1.4)	ND (2.8) *	12	15
	01/25/16 Δ	1 - 1.5	N	ND (2.7) *	2.4	150	ND (1.3) *	ND (1.3) *	ND (0.27)	4.5	1.6	2.7	6.5	ND (0.13) *	ND (1.3)	2.8	ND (1.3)	ND (1.3)	ND (2.7) *	10	12
	01/25/16 Δ	1.5 - 2	N	ND (2.7) *	2.1	130	ND (1.3) *	ND (1.3) *	ND (0.27)	3.3	ND (1.3)	ND (2.7)	4.1	ND (0.13) *	ND (1.3)	2	ND (1.3)	ND (1.3)	ND (2.7) *	7.7	10
ERPW-3	01/25/16 Δ	0 - 0.5	N	ND (7.9) *	17	290	ND (3.9) *	ND (3.9) *	ND (0.79)	22	8.9	30	30	ND (0.39) *	ND (3.9) *	22	ND (3.9) *	ND (3.9)	ND (7.9) *	39	110
	01/25/16 Δ	1 - 1.5	N	ND (3) *	4.2	79	ND (1.5) *	ND (1.5) *	ND (0.3)	4.2	1.6	4.3	7.1	ND (0.15) *	ND (1.5) *	3.6	ND (1.5) *	ND (1.5)	ND (3) *	8	18
	01/25/16 Δ	1.5 - 2	N	ND (3.2) *	5.6	110	ND (1.6) *	ND (1.6) *	ND (0.32)	7.1	2.4	8	14	ND (0.16) *	ND (1.6) *	5.5	ND (1.6) *	ND (1.6)	ND (3.2) *	15	29
	01/28/16 Δ	5.5 - 6	N	---	---	---	---	---	ND (0.34)	3.3	---	---	---	---	ND (0.31)	---	---	---	---	---	---
ERPW-4	01/28/16 Δ	0 - 0.5	N	ND (6.8) *	10	140	ND (3.4) *	ND (3.4) *	ND (0.68)	9.1	4.1	15	13	ND (0.34) *	ND (3.4) *	11	ND (3.4) *	ND (3.4)	ND (6.8) *	17	44
	01/28/16 Δ	1 - 1.5	N	ND (3.3) *	6.9	110	ND (1.7) *	ND (1.7) *	ND (0.33)	6.6	3	7.6	13	ND (0.17) *	ND (1.7) *	5.7	ND (1.7) *	ND (1.7)	ND (3.3) *	14	27
	01/28/16 Δ	1.5 - 2	N	ND (3.4) *	6	100	ND (1.7) *	ND (1.7) *	ND (0.34)	4.8	2	5.1	9.2	ND (0.17) *	ND (1.7) *	4.1	ND (1.7) *	ND (1.7)	ND (3.4) *	9.8	19
ERPW-5	01/25/16 Δ	0 - 0.5	N	ND (7) *	11	250	ND (3.5) *	ND (3.5) *	ND (0.7)	22	8.3	29	34	ND (0.36) *	ND (3.5) *	20	4.3	ND (3.5)	ND (7) *	43	150
	01/25/16 Δ	1 - 1.5	N	ND (3.7) *	7.4	150	ND (1.9) *	ND (1.9) *	ND (0.37) J	11	4.1	12	21	ND (0.18) *	ND (1.9) *	8.6	ND (1.9) *	ND (1.9)	ND (3.7) *	23	70
	01/25/16 Δ	1.5 - 2	N	ND (4.1) *	8.1	200	ND (2) *	ND (2) *	ND (0.41)	11	4	11	20	ND (0.2) *	ND (2) *	8.6	ND (2) *	ND (2)	ND (4.1) *	22	64
ERPW-6	01/24/16 Δ	0 - 0.5	N	ND (3.5) *	9.1	230	ND (1.7) *	ND (1.7) *	ND (0.35)	16	7.2	18	39	ND (0.18) *	ND (1.7) *	13	ND (1.7) *	ND (1.7)	ND (3.5) *	35	240
	01/24/16 Δ	1 - 1.5	N	ND (2.2) *	4.1	150	ND (1.1) *	ND (1.1) *	ND (0.22)	10	5.7	6.3	23	ND (0.11) *	ND (1.1)	9.9	ND (1.1)	ND (1.1)	ND (2.2) *	25	300
	01/24/16 Δ	1.5 - 2	N	ND (2.4) *	4.3	120	ND (1.2) *	ND (1.2) *	ND (0.23)	8.9	5.2	7.6	28	ND (0.12) *	ND (1.2)	7.3	ND (1.2)	ND (1.2)	ND (2.4) *	26	250
ERPW-7	01/24/16 Δ	0 - 0.5	N	ND (2.6) *	4.2	130	ND (1.3) *	ND (1.3) *	ND (0.26)	4.2	2	3	5	ND (0.13) *	ND (1.3)	3	ND (1.3)	ND (1.3)	ND (2.6) *	11 J	24 J
	01/24/16 Δ	0 - 0.5	FD	ND (2.7) *	3.1	150	ND (1.3) *	ND (1.3) *	ND (0.27)	3	1.4	ND (2.7)	3.5	ND (0.13) *	ND (1.3)	2.2	ND (1.3)	ND (1.3)	ND (2.7) *	7.5 J	10 J
	01/24/16 Δ	1 - 1.5	N	ND (2.7) *	3.8	76	ND (1.3) *	ND (1.3) *	ND (0.27)	2.8	1.4	2.9	4.1	ND (0.13) *	ND (1.3)	2.7	ND (1.3)	ND (1.3)	ND (2.7) *	5.9	14 J
	01/24/16 Δ	1 - 1.5	FD	ND (2.7) *	3.2	68	ND (1.3) *	ND (1.3) *	ND (0.27)	2.3	ND (1.3)	ND (2.7)	3.2	ND (0.13) *	ND (1.3)	1.9	ND (1.3)	ND (1.3)	ND (2.7) *	5.3	9.4 J
	01/24/16 Δ	1.5 - 2	N	ND (2.7) *	3.4	71	ND (1.4) *	ND (1.4) *	ND (0.27)	2.3	ND (1.4)	ND (2.7)	3.4	ND (0.13) *	ND (1.4) *	2	ND (1.4)	ND (1.4)	ND (2.7) *	5.5	9.6
	01/24/16 Δ	1.5 - 2	FD	ND (2.6) *	3.2	63	ND (1.3) *	ND (1.3) *	ND (0.26)	2	ND (1.3)	ND (2.6)	3	ND (0.13) *	ND (1.3)	1.8	ND (1.3)	ND (1.3)	ND (2.6) *	4.5	8.6
	01/25/16 Δ	5.5 - 6	N	---	---	---	---	---	ND (0.26)	3.5	---	---	---	---	ND (1.3)	---	---	---	---	---	---
ERPW-8	01/24/16 Δ	0 - 0.5	N	ND (2.8) *	3.5	160	ND (1.4) *	ND (1.4) *	ND (0.28)	5.2	1.9	4	4.9	ND (0.14) *	ND (1.4) *	3.5	ND (1.4)	ND (1.4)	ND (2.8) *	11	22
	01/24/16 Δ	1 - 1.5	N	ND (2.6) *	3.2	65	ND (1.3) *	ND (1.3) *	ND (0.26)	2.7	ND (1.3)	ND (2.6)	3	ND (0.13) *	ND (1.3)	2	ND (1.3)	ND (1.3)	ND (2.6) *	5	9
	01/24/16 Δ	1.5 - 2	N	ND (2.6) *	2.5	130	ND (1.3) *	ND (1.3) *	ND (0.26)	3.8	1.3	ND (2.6)	3.7	ND (0.13) *	ND (1.3)	2.4	ND (1.3)	ND (1.3)	ND (2.6) *	9.2	11
ERPW-9	01/23/16 Δ	0 - 0.5	N	ND (5.1) *	13	230	ND (2.5) *	ND (2.5) *	ND (0.51)	24	10	34	25	ND (0.26) *	ND (2.5) *	20	ND (2.5) *	ND (2.5)	ND (5.1) *	39	92
	01/23/16 Δ	1 - 1.5	N	ND (3.6) *	8.4	90	ND (1.8) *	ND (1.8) *	ND (0.36)	8.9	3.5	12	11	ND (0.18) *	ND (1.8) *	7.4	ND (1.8) *	ND (1.8)	ND (3.6) *	17	40
	01/23/16 Δ	1.5 - 2	N	ND (3.6) *	7.7	120	ND (1.8) *	ND (1.8) *	ND (0.36)	10	4.1	12	12	ND (0.18) *	ND (1.8) *	8.3	ND (1.8) *	ND (1.8)	ND (3.6) *	20	44

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the natur and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established

1 Interim screening level is equal to the to the lower value between the threshold effect concentration and probable effect concentration. If neither is available, then the soil background value, if available, is used.
2 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.
3 MacDonald, D.D., C.G. Ingersoll, and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environm. Contam. Toxicol. 39:20-31.

TABLE 3-6I

Sample Results: Polycyclic Aromatic Hydrocarbons in Sediment
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Soil Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Consensus-based Threshold effect concentration [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Consensus-based Probable effect concentration [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
ERPW-1	01/28/16 Δ	0 - 0.5	N	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND	ND	ND (12)
	01/28/16 Δ	1 - 1.5	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
	01/28/16 Δ	1.5 - 2	N	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND	ND	ND (7.6)
ERPW-10	01/24/16 Δ	0 - 0.5	N	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND (7.5)	ND	ND	ND (8.7)
	01/24/16 Δ	1 - 1.5	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
	01/24/16 Δ	1.5 - 2	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
ERPW-2	01/25/16 Δ	0 - 0.5	N	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND	ND	ND (8.2)
	01/25/16 Δ	1 - 1.5	N	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND	ND	ND (7.7)
	01/25/16 Δ	1.5 - 2	N	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND	ND	ND (7.7)
ERPW-3	01/25/16 Δ	0 - 0.5	N	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND	ND	ND (23)
	01/25/16 Δ	1 - 1.5	N	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND (7.4)	ND	ND	ND (8.6)
	01/25/16 Δ	1.5 - 2	N	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND	ND	ND (9.2)
	01/28/16 Δ	5.5 - 6	N	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND	ND	ND (7.2)
ERPW-4	01/28/16 Δ	0 - 0.5	N	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND	ND	ND (20)
	01/28/16 Δ	1 - 1.5	N	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND (8.3)	ND	ND	ND (9.6)
	01/28/16 Δ	1.5 - 2	N	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND (8.5)	ND	ND	ND (9.8)
ERPW-5	01/25/16 Δ	0 - 0.5	N	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND	ND	ND (21)
	01/25/16 Δ	1 - 1.5	N	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND (9.2)	ND	ND	ND (11)
	01/25/16 Δ	1.5 - 2	N	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND	ND	ND (12)
ERPW-6	01/24/16 Δ	0 - 0.5	N	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND (8.7)	ND	ND	ND (10)
	01/24/16 Δ	1 - 1.5	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
	01/24/16 Δ	1.5 - 2	N	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND	ND	ND (6.8)
ERPW-7	01/24/16 Δ	0 - 0.5	N	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND	ND	ND (7.6)
	01/24/16 Δ	0 - 0.5	FD	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND	ND	ND (7.7)
	01/24/16 Δ	1 - 1.5	N	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND	ND	ND (7.7)
	01/24/16 Δ	1 - 1.5	FD	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND	ND	ND (7.6)
	01/24/16 Δ	1.5 - 2	N	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND	ND	ND (7.7)
	01/24/16 Δ	1.5 - 2	FD	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
	01/25/16 Δ	5.5 - 6	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
ERPW-8	01/24/16 Δ	0 - 0.5	N	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND	ND	ND (8.1)
	01/24/16 Δ	1 - 1.5	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND	ND	ND (7.5)
	01/24/16 Δ	1.5 - 2	N	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND	ND	ND (7.4)

TABLE 3-6I

Sample Results: Polycyclic Aromatic Hydrocarbons in Sediment
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Soil Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Consensus-based Threshold effect concentration [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Consensus-based Probable effect concentration [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
ERPW-9	01/23/16 Δ	0 - 0.5	N	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND	ND	ND (15)
	01/23/16 Δ	1 - 1.5	N	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND	ND	ND (10)
	01/23/16 Δ	1.5 - 2	N	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND (8.9)	ND	ND	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Interim screening level is equal to the to the to the lower value between the threshold effect concentration and probable effect concentration. If neither is available, then the soil background value, if available, is used.

2 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

3 MacDonald, D.D., C.G. Ingersoll, and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environm. Contam. Toxicol. 39:20-31.

TABLE 3-6m

Sample Results: General Chemistry Parameters in Sediment
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE
Soil Background [2]:				NE	NE
Consensus-based Threshold effect concentration [3]:				NE	NE
Consensus-based Probable effect concentration [3]:				NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Ammonia as nitrogen**	**Total organic carbon**
Category 1					
ERPW-1	01/28/16	0 - 0.5	N	77.7	18,300
	01/28/16	1 - 1.5	N	2.87	796
	01/28/16	1.5 - 2	N	6.28	6,980 J
ERPW-10	01/24/16	0 - 0.5	N	4.87	13,200 J
	01/24/16	1 - 1.5	N	3.89	1,730 J
	01/24/16	1.5 - 2	N	4.6	4,550 J
ERPW-2	01/25/16	0 - 0.5	N	ND (0.275)	2,010 J
	01/25/16	1 - 1.5	N	1.06 J	3,130 J
	01/25/16	1.5 - 2	N	1.18 J	1,520 J
ERPW-3	01/25/16	0 - 0.5	N	3.82	27,100 J
	01/25/16	1 - 1.5	N	0.674 J	5,720 J
	01/25/16	1.5 - 2	N	1.63	4,850 J
ERPW-4	01/28/16	0 - 0.5	N	5.94	37,100 J
	01/28/16	1 - 1.5	N	4.06	4,160 J
	01/28/16	1.5 - 2	N	4.14	4,220 J
ERPW-5	01/25/16	0 - 0.5	N	9.8	42,800 J
	01/25/16	1 - 1.5	N	2.93	22,600 J
	01/25/16	1.5 - 2	N	2.09	25,900
ERPW-6	01/24/16	0 - 0.5	N	1.13	26,800
	01/24/16	1 - 1.5	N	0.693 J	2,080
	01/24/16	1.5 - 2	N	1.78	1,150
ERPW-7	01/24/16	0 - 0.5	N	0.354 J	845 J
	01/24/16	0 - 0.5	FD	1.36	2,730 J
	01/24/16	1 - 1.5	N	1.17 J	ND (142)
	01/24/16	1 - 1.5	FD	0.792 J	ND (121)
	01/24/16	1.5 - 2	N	2.42	ND (196)
	01/24/16	1.5 - 2	FD	ND (0.249)	ND (137)
ERPW-8	01/24/16	0 - 0.5	N	6.91	13,500
	01/24/16	1 - 1.5	N	8.37	4,070
	01/24/16	1.5 - 2	N	0.806 J	391 J
ERPW-9	01/23/16	0 - 0.5	N	7.52 J	36,300
	01/23/16	1 - 1.5	N	0.65 J	14,300
	01/23/16	1.5 - 2	N	0.774 J	12,200

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Interim screening level is equal to the to the lower value between the threshold effect concentration and probable effect concentration. If neither is available, then the soil background value, if available, is used.

2 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

3 MacDonald, D.D., C.G. Ingersoll, and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environm. Contam. Toxicol. 39:20-31.

TABLE 3-6n

Sample Results: Polychlorinated Biphenyls in Sediment
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE
Soil Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE
Consensus-based Threshold effect concentration [3]:				NE	NE	NE	NE	NE	NE	NE	NE
Consensus-based Probable effect concentration [3]:				NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
ERPW-1	01/28/16 Δ	0 - 0.5	N	ND (33)	ND (66)	ND (33)	ND (33) J	ND (33)	ND (33)	ND (33)	ND
	01/28/16 Δ	1 - 1.5	N	ND (21)	ND (43)	ND (21)	ND (21) J	ND (21)	ND (21)	ND (21)	ND
	01/28/16 Δ	1.5 - 2	N	ND (22)	ND (44)	ND (22)	ND (22) J	ND (22)	ND (22)	ND (22)	ND
ERPW-10	01/24/16 Δ	0 - 0.5	N	ND (25)	ND (49)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND
	01/24/16 Δ	1 - 1.5	N	ND (21)	ND (43)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	ND
	01/24/16 Δ	1.5 - 2	N	ND (21)	ND (43)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	ND
ERPW-2	01/25/16 Δ	0 - 0.5	N	ND (23)	ND (47)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND
	01/25/16 Δ	1 - 1.5	N	ND (22)	ND (44)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/25/16 Δ	1.5 - 2	N	ND (22)	ND (44)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
ERPW-3	01/25/16 Δ	0 - 0.5	N	ND (65)	ND (130)	ND (65)	ND (65)	ND (65)	ND (65)	ND (65)	ND
	01/25/16 Δ	1 - 1.5	N	ND (25)	ND (49)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND
	01/25/16 Δ	1.5 - 2	N	ND (26)	ND (53)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND
	01/28/16 Δ	5.5 - 6	N	ND (21)	ND (41)	ND (21)	ND (21) J	ND (21)	ND (21)	ND (21)	ND
ERPW-4	01/28/16 Δ	0 - 0.5	N	ND (56)	ND (110)	ND (56)	ND (56) J	ND (56)	ND (56)	ND (56)	ND
	01/28/16 Δ	1 - 1.5	N	ND (27)	ND (55)	ND (27)	ND (27) J	ND (27)	ND (27)	ND (27)	ND
	01/28/16 Δ	1.5 - 2	N	ND (28)	ND (56)	ND (28)	ND (28) J	ND (28)	ND (28)	ND (28)	ND
ERPW-5	01/25/16 Δ	0 - 0.5	N	ND (58)	ND (120)	ND (58)	ND (58)	ND (58)	ND (58)	ND (58)	ND
	01/25/16 Δ	1 - 1.5	N	ND (30)	ND (61)	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	ND
	01/25/16 Δ	1.5 - 2	N	ND (33)	ND (67)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND
ERPW-6	01/24/16 Δ	0 - 0.5	N	ND (29)	ND (58)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND
	01/24/16 Δ	1 - 1.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND
	01/24/16 Δ	1.5 - 2	N	ND (19)	ND (39)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND

TABLE 3-6n

Sample Results: Polychlorinated Biphenyls in Sediment
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ERPW-7	01/24/16 Δ	0 - 0.5	N	ND (22)	ND (43)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/24/16 Δ	0 - 0.5	FD	ND (22)	ND (44)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/24/16 Δ	1 - 1.5	N	ND (22)	ND (44)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/24/16 Δ	1 - 1.5	FD	ND (22)	ND (44)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/24/16 Δ	1.5 - 2	N	ND (22)	ND (44)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/24/16 Δ	1.5 - 2	FD	ND (21)	ND (43)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	ND
	01/25/16 Δ	5.5 - 6	N	ND (22)	ND (43)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
ERPW-8	01/24/16 Δ	0 - 0.5	N	ND (23)	ND (46)	ND (23)	ND (23)	ND (23)	ND (23)	ND (23)	ND
	01/24/16 Δ	1 - 1.5	N	ND (22)	ND (43)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND
	01/24/16 Δ	1.5 - 2	N	ND (21)	ND (42)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	ND
ERPW-9	01/23/16 Δ	0 - 0.5	N	ND (42)	ND (84)	ND (42)	ND (42)	ND (42)	ND (42)	ND (42)	ND
	01/23/16 Δ	1 - 1.5	N	ND (30)	ND (59)	ND (30)	ND (30)	ND (30)	ND (30)	ND (30)	ND
	01/23/16 Δ	1.5 - 2	N	ND (29)	ND (59)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Interim screening level is equal to the to the lower value between the threshold effect concentration and probable effect concentration. If neither is available, then the soil background value, if available, is used.

2 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

3 MacDonald, D.D., C.G. Ingersoll, and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environm. Contam. Toxicol. 39:20-31.

TABLE 3-6o

Sample Results: Dioxins and Furans
AOC 10 – East Ravine
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Soil Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.98**	**5.58**	**5.58**
Consensus-based Threshold effect concentration [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Consensus-based Probable effect concentration [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
Category 1																							
ERPW-1	01/28/16 Δ	0 - 0.5	N	5.6 J	ND (0.66) J	ND (0.17) J	ND (0.22) J	ND (0.14) J	ND (0.13) J	ND (0.13) J	ND (0.12) J	ND (0.16) J	ND (0.16) J	ND (0.12) J	ND (0.7) J	ND (0.12) J	ND (0.15) J	ND (0.36) J	49 J	1.9 J	0.48	0.35	0.35
	01/28/16 Δ	1.5 - 2	N	2.2 J	ND (0.38) J	ND (0.13) J	ND (0.2) J	ND (0.1) J	ND (0.2) J	ND (0.098) J	ND (0.19) J	ND (0.12) J	ND (0.14) J	ND (0.1) J	ND (0.46) J	ND (0.11) J	ND (0.2) J	ND (0.17) J	17 J	ND (0.59) J	0.38	0.29	0.29
ERPW-3	01/25/16 Δ	0 - 0.5	N	3 J	0.41 J	ND (0.12) J	ND (0.16) J	ND (0.089) J	ND (0.16) J	ND (0.085) J	ND (0.15) J	ND (0.1) J	ND (0.093) J	ND (0.12) J	ND (0.45) J	ND (0.12) J	ND (0.22) J	ND (0.25) J	ND (31) J	ND (0.88) J	0.41	0.29	0.29
	01/25/16 Δ	1.5 - 2	N	6.5 J	ND (0.66) J	ND (0.12) J	ND (0.22) J	ND (0.1) J	ND (0.23) J	ND (0.095) J	ND (0.2) J	ND (0.12) J	ND (0.22) J	ND (0.14) J	ND (1.7) J	ND (0.14) J	ND (0.14) J	ND (0.18) J	69 J	2.2 J	0.48	0.44	0.44
ERPW-9	01/23/16 Δ	0 - 0.5	N	7.6 J	ND (1.1) J	ND (0.28) J	ND (0.27) J	ND (0.19) J	ND (0.26) J	ND (0.18) J	ND (0.081) J	ND (0.22) J	ND (0.1) J	ND (0.096) J	ND (1.1) J	ND (0.1) J	ND (0.13) J	ND (0.93) J	110 J	ND (4) J	0.76	0.41	0.41
	01/23/16 Δ	1.5 - 2	N	5.4 J	ND (0.67) J	ND (0.18) J	ND (0.12) J	ND (0.067) J	ND (0.12) J	ND (0.14) J	ND (0.11) J	ND (0.077) J	ND (0.16) J	ND (0.14) J	ND (1.2) J	ND (0.14) J	ND (0.27) J	ND (0.22) J	56 J	2 J	0.5	0.42	0.42

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ng/kg	nanograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Interim screening level is equal to the to the lower value between the threshold effect concentration and probable effect concentration. If neither is available, then the soil background value, if available, is used.

2 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

3 MacDonald, D.D., C.G. Ingersoll, and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environm. Contam. Toxicol. 39:20-31.

TABLE 3-6p

Sample Results: Metals in Porewater

AOC 10 – East Ravine

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (µg/L)																	
Surface water screening level				**6**	**10**	**1,000**	**4**	**5**	**NA**	**50**	**NA**	**1,300**	**NA**	**2**	**NA**	**100**	**50**	**NA**	**1.7**	**NA**	**7,400**
Topock Ambient Groundwater Concentrations				**1.22**	**24.3**	**195**	**0.663**	**NA**	**31.8**	**34.1**	**0.831**	**11**	**1.91**	**NA**	**36.3**	**10.6**	**10.3**	**2.13**	**0.908**	**59.9**	**78**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony, dissolved**	**Arsenic, dissolved**	**Barium, dissolved**	**Beryllium, dissolved**	**Cadmium, dissolved**	**Chromium, Hexavalent**	**Chromium, total dissolved**	**Cobalt, dissolved**	**Copper, dissolved**	**Lead, dissolved**	**Mercury, dissolved**	**Molybdenum, dissolved**	**Nickel, dissolved**	**Selenium, dissolved**	**Silver, dissolved**	**Thallium, dissolved**	**Vanadium, dissolved**	**Zinc, dissolved**
ERPW-1	1/28/2016	0 - 1	N	0.83	0.62	--	0.5 U	0.5 U	0.22 U	1 U	6	2.8	1.6	0.2 U	3.5	7.9	3.2	0.5 U	0.5 U	1 U	31 U
ERPW-2	1/28/2016	0 - 1	N	1.4	5.2	--	0.5 U	0.5 U	0.2 U	1 U	0.5 U	1 U	1 U	0.2 U	8	1.3	2.1	0.5 U	0.5 U	3.7	10 U
ERPW-2	1/28/2016	5 - 6	N	--	0.37	--	--	--	0.2 U	1 U	--	--	--	--	0.52	--	--	--	--	--	--
ERPW-3	1/28/2016	0 - 1	N	0.59	0.8	--	0.5 U	0.5 U	0.2 U	1 U	1.5	1 U	1 U	0.2 U	2.7	1.7	0.5 U	0.5 U	0.5 U	1 U	10 U
ERPW-3	1/28/2016	5 - 6	N	--	0.29	--	--	--	0.2 U	1 U	--	--	--		0.87		--	--	--	--	--
ERPW-4	1/28/2016	0 - 1	N	0.62	0.87	--	0.5 U	0.5 U	0.2 U	1 U	0.5 U	1 U	1 U	0.2 U	5.7	1.1	1.4	0.5 U	0.5 U	1 U	10 U
ERPW-5	1/28/2016	0 - 1	N	0.5 U	2.5	--	0.5 U	0.5 U	0.23 U	1 U	0.5 U	1.7	1 U	0.2 U	6.2	1.3	1.6	0.5 U	0.5 U	1.6	10 U
ERPW-5	1/28/2016	5 - 6	N	--	0.93	--	--	--	0.2 U	1 U	--	--		--	7.8	--	--	--	--	--	--
ERPW-6	1/25/2016	0 - 1	N	0.5 U	1.3	120	0.5 U	0.5 U	0.2 U	1 U	0.5 U	1 U	1 U	0.2 U	5.6 J	1 U	1.2	0.95 U	0.5 U	1.6	10 U
ERPW-7	1/25/2016	0 - 1	N	0.5 U	0.71	85	0.5 U	0.5 U	0.2 U	1 U	0.5 U	1 U	1 U	0.2 U	6.9 J	1 U	0.5 U	0.5 U	0.5 U	1 U	10 U
ERPW-7	1/25/2016	0 - 1	FD	0.5 U	0.66	82	0.5 U	0.5 U	0.2 U	1 U	0.5 U	1 U	1 U	0.2 U	6.9 J	1 U	0.5 U	0.5 U	0.5 U	1 U	10 U
ERPW-7	1/28/2016	5 - 6	N	--	0.87	--	--	--	0.2 U	1 U		--	--	--	5.3	--	--	--	--	--	--
ERPW-8	1/25/2016	0 - 1	N	0.5 U	0.79	53	0.5 U	0.5 U	0.2 U	1 U	0.5 U	1 U	1 U	0.2 U	4.1 J	1 U	0.5 U	0.5 U	0.5 U	1 U	10 U
ERPW-8	1/28/2016	5 - 6	N	--	2.4	--	--	--	0.2 U	1.6	--			--	2.1	--		--	--	--	--
ERPW-9	1/25/2016	0 - 1	N	0.5 U	1.3	230	0.5 U	0.5 U	0.2 U	1 U	0.66	1 U	1 U	0.2 U	6.1 J	1 U	0.5 U	0.5 U	0.5 U	1 U	10 U
ERPW-10	1/28/2016	5 - 6	N	--	0.61	--	--	--	1 U	1 U	--	--	--	--	49	--	--	--	--	--	--

-- = not analyzed

µg/kg = micrograms per kilogram

FD = field duplicate

ft bgs = feet below ground surface

N = primary sample

NA = not applicable

U = not detected at the listed reporting limit

J = concentration or reporting limit estimated by laboratory or data validation

TABLE 3-6q

Sample Results: Contract Laboratory Program Inorganics in Porewater

AOC 10 – East Ravine

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Contract Laboratory Program Inorganics (µg/L)					
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Calcium, dissolved**	**Iron, dissolved**	**Magnesium, dissolved**	**Manganese, dissolved**	**Potassium, dissolved**	**Sodium, dissolved**
ERPW-1	1/28/2016	0 - 1	N	180000	160 U	46000	--	5500	100000
ERPW-2	1/28/2016	0 - 1	N	130000	25 U	30000	--	9400	84000
ERPW-2	1/28/2016	5 - 6	N	230000	--	62000	--	870	230000
ERPW-3	1/28/2016	0 - 1	N	92000	20 U	31000	--	5100	83000
ERPW-3	1/28/2016	5 - 6	N	110000	190 U	31000	--	680	220000
ERPW-4	1/28/2016	0 - 1	N	80000	20 U	27000	8 U	5400	80000
ERPW-5	1/28/2016	0 - 1	N	86000	29 U	28000	--	11000	86000
ERPW-5	1/28/2016	5 - 6	N	480000	31 U	230000	--	3700	540000
ERPW-6	1/25/2016	0 - 1	N	76000 J	61 J	26000	1.1	4700	82000
ERPW-7	1/25/2016	0 - 1	N	96000	20 U	25000	1.2	3900	85000
ERPW-7	1/25/2016	0 - 1	FD	90000	20 U	25000	0.54	3700	80000
ERPW-7	1/28/2016	5 - 6	N	92000	180 U	28000	--	3500	85000
ERPW-8	1/25/2016	0 - 1	N	150000	20 U	26000	0.7	1000	88000
ERPW-8	1/28/2016	5 - 6	N	180000	--	58000	--	8000	140000
ERPW-9	1/25/2016	0 - 1	N	130000	37	31000	240	3500	93000
ERPW-10	1/28/2016	5 - 6	N	530000	--	110000	--	22000	3800000

-- = not analyzed

µg/kg = micrograms per kilogram

FD = field duplicate

ft bgs = feet below ground surface

N = primary sample

U = not detected at the listed reporting limit

J = concentration or reporting limit estimated by laboratory or data validation

TABLE 3-6r

Sample Results: General Chemistry Parameters in Porewater

AOC 10 – East Ravine

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					General Chemistry Parameters										
Location	Date	Depth (ft bgs)	Sample Type	Units	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Alkalinity, hydroxide	Alkalinity, total as CaCO3	Ammonia as nitrogen	Chloride	Dissolved organic carbon	Fluoride	Nitrate (as nitrogen)	Sulfate	Sulfide
ERPW-1	1/28/2016	0 - 1	N	mg/L	120	5 U	5 U	120	0.05 U	110	12	0.7	0.25 U	670	0.05 U
ERPW-2	1/28/2016	0 - 1	N	mg/L	120	5 U	5 U	120	0.05 U	110	17	0.3	0.1 U	430	0.05 U
ERPW-2	1/28/2016	5 - 6	N	mg/L	1100	5 U	5 U	1100	0.05 U	320	5.1	0.7	0.25 U	26	0.05 U
ERPW-3	1/28/2016	0 - 1	N	mg/L	100	5 U	5 U	100	0.05 U	99	2.6	0.3	0.05 U	360	0.05 U
ERPW-3	1/28/2016	5 - 6	N	mg/L	570	5 U	5 U	570	0.05 U	150	4	0.4	0.1 U	210	0.05 U
ERPW-4	1/28/2016	0 - 1	N	mg/L	130	5 U	5 U	130	0.05 U	96	3.7	0.4	0.05 U	290	0.05 U
ERPW-5	1/28/2016	0 - 1	N	mg/L	130	5 U	5 U	130	0.05 U	100	6.6	0.3	0.22	280	0.05 U
ERPW-5	1/28/2016	5 - 6	N	mg/L	1500	5 U	5 U	1500	0.08	580	7.7	0.9	0.25 U	1100	0.05 U
ERPW-6	1/25/2016	0 - 1	N	mg/L	140	5 U	5 U	140	0.22	93	2.3	0.3	0.11	260	0.05 U
ERPW-7	1/25/2016	0 - 1	N	mg/L	210	5 U	5 U	210	0.14	93	2	0.3	0.1	270	0.05 U
ERPW-7	1/25/2016	0 - 1	FD	mg/L	190	5 U	5 U	190	0.05	91	1.9	0.3	0.08	280	0.05 U
ERPW-7	1/28/2016	5 - 6	N	mg/L	200	5 U	5 U	200	0.05 U	94	1.2	0.3	0.05 U	250	0.05 U
ERPW-8	1/25/2016	0 - 1	N	mg/L	220	5 U	5 U	220	0.08	130	24	0.8	0.25 U	360	0.05 U
ERPW-8	1/28/2016	5 - 6	N	mg/L	880	5 U	5 U	880	0.05 U	140	23	0.5 U	0.25 U	2.5 U	0.05 U
ERPW-9	1/25/2016	0 - 1	N	mg/L	210	5 U	5 U	210	0.05 U	100	4.2	0.6	0.25 U	360	0.05 U
ERPW-10	1/28/2016	5 - 6	N	mg/L	340	5 U	5 U	340	0.79	7100	1 U	2.9	0.25 U	1700	0.05 U

-- = not analyzed

µg/kg = micrograms per kilogram

FD = field duplicate

ft bgs = feet below ground surface

N = primary sample

U = not detected at the listed reporting limit

TABLE 3-7a

Sample Results: Metals
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC11-4-OS4	06/11/14	0	N	ND (2) *	3.4	150	ND (1) *	ND (1)	ND (0.2)	16	6.2	9.6	3.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	40
AOC11-4-OS6	06/11/14	0	N	ND (2) *	3.1	140	ND (1) *	ND (1)	0.22	18	5.7	9.2	7.2	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	27	39
AOC11-4-OS5	06/11/14	0	N	ND (2) *	3.4	110	ND (1) *	ND (1)	ND (0.2)	21	6.8	12	6.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	32	43
AOC11-4-OS3	06/11/14	0	N	ND (2) *	3	150	ND (1) *	ND (1)	ND (0.2)	14	5	8.6	5.3	ND (0.099) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	27	35
AOC11-4-OS1	06/11/14	0	N	ND (2) J*	7.2 J	200 J	ND (1) J*	ND (1) J	ND (0.2)	18 J	7 J	11 J	4.2 J	ND (0.1) *	ND (1) J	14 J	ND (1) J	ND (1) J	ND (2) J*	32 J	47 J
AOC11-4-OS6	06/11/14	2 - 3	N	ND (2.1) *	3	120	ND (1.1) *	ND (1.1) *	ND (0.21)	20	6.7	7.7	3.2	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	29	36
AOC11-4-OS5	06/11/14	2 - 3	N	ND (2.1) *	2.7	97	ND (1) *	ND (1)	ND (0.21)	18	5.7	9.3	5.4	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	28	36
AOC11-4-OS4	06/11/14	2 - 3	N	ND (2) *	3.4	120	ND (1) *	ND (1)	ND (0.2)	14	5.9	8.6	3.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	37
AOC11-4-OS3	06/11/14	2 - 3	N	ND (2) *	3.1	120	ND (1) *	ND (1)	0.43	18	5	7.3	6.4	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2) *	23	30
AOC11-4-OS1	06/11/14	2 - 3	N	ND (2.1) *	6.7	170	ND (1.1) *	ND (1.1) *	ND (0.21)	16	6.5	11	3.5	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	30	41
AOC11-4-OS3	06/11/14	2 - 3	FD	ND (2) *	3	120	ND (1) *	ND (1)	0.43	17	4.2	7.7	6.2	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	23	30
AOC11-4-OS4	06/11/14	5 - 6	N	ND (2) *	3.6	150	ND (1) *	ND (1)	ND (0.21)	17	6.4	10	5.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	38
AOC11-4-OS5	06/11/14	5 - 6	FD	ND (2.1) *	3.4	110	ND (1) *	ND (1)	ND (0.21)	20	6.2	8.9	5.6	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	30	40
AOC11-1	01/05/16	0 - 1	N	ND (2.1) *	4.9	110 J	ND (1) *	ND (1)	ND (0.21)	11	4.8	9.7	7.8 J	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2.1) *	19	67 J
	01/05/16	0 - 1	FD	ND (2) *	5.2	200 J	ND (1) *	ND (1)	ND (0.21)	11	4.5	8.1	5.4 J	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2) *	21	50 J
	01/05/16	2 - 3	N	ND (2.1) *	3.3	140	ND (1) *	ND (1)	ND (0.21)	11	3.9	9.5	5.2	ND (0.1) *	ND (1)	8.3	ND (1)	ND (1)	ND (2.1) *	22	32
	01/05/16	5 - 6	N	ND (2.4) *	3.9	120	ND (1.2) *	ND (1.2) *	ND (0.24)	18	5.8	8.1	5.3	ND (0.12) *	ND (1.2)	12	ND (1.2)	ND (1.2)	ND (2.4) *	29	38
	01/05/16	9 - 10	N	ND (2.8) *	6.1	140	ND (1.4) *	ND (1.4) *	ND (0.28)	15	6	9.2	6.1	ND (0.14) *	ND (1.4) *	12	ND (1.4)	ND (1.4)	ND (2.8) *	30	37
AOC11-2	01/05/16	0 - 1	N	ND (2.1) *	5.1	100	ND (1) *	ND (1)	ND (0.21)	21	7.4	8.7	2.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	36	51
	01/05/16	2 - 3	N	ND (2.1) *	3.5	73	ND (1) *	ND (1)	ND (0.21)	21	7.9	10	1.9	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	39	44
	01/05/16	5 - 6	N	ND (2.1) *	2.9	81	ND (1) *	ND (1)	ND (0.21)	30	9.4	12	2.2	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2.1) *	45	45
	01/05/16	9 - 10	N	ND (2.1) *	2.6	37 J	ND (1) *	ND (1)	ND (0.21)	23 J	9.4	9.4	1.8	ND (0.11) *	ND (1)	17	ND (1)	ND (1)	ND (2.1) *	38	45
	01/05/16	9 - 10	FD	ND (2.1) *	2.8	26 J	ND (1) *	ND (1)	ND (0.21)	17 J	8.6	12	2.7	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	38	46
AOC11-3	01/05/16	0 - 1	N	ND (2) *	3.3	98	ND (1) *	ND (1)	ND (0.2)	15	5.6	8	2.6	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	29	31
	01/05/16	2 - 3	N	ND (2.1) *	3.6	120	ND (1) *	ND (1)	ND (0.21)	20	7.9	10	2.3	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	40	43
	01/05/16	5 - 6	N	ND (2.1) *	3.7	110	ND (1) *	ND (1)	ND (0.21)	20	7.7	11	2.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	35	38
	01/05/16	9 - 10	N	ND (2.1) *	3.4	110	ND (1.1) *	ND (1.1) *	ND (0.21)	23	8.6	10	2.2	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	42	45
	01/05/16	9 - 10	FD	ND (2.1) *	3.2	90	ND (1.1) *	ND (1.1) *	ND (0.21)	14	6.3	7.7	1.8	ND (0.1) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	27	34
AOC11-4	01/05/16	0 - 1	N	ND (2.1) *	3.3	120	ND (1) *	ND (1)	ND (0.2)	25	5.5	9.1	4.1	ND (0.1) *	1.3	12	ND (1)	ND (1)	ND (2.1) *	24	33
	01/05/16	2 - 3	N	ND (2.1) *	3.5	140	ND (1) *	ND (1)	1	16	5.8	9	4.1	ND (0.1) *	ND (1)	12	ND (1.1)	ND (1)	ND (2.1) *	24	33
AOC11-5	02/03/16	0 - 0.5	N	ND (2.5) *	7.1	170	ND (1.2) *	ND (1.2) *	ND (0.25) J	27	7.4	22	14	ND (0.13) *	ND (1.2)	16	ND (1.2)	ND (1.2)	ND (2.5) *	34	70
	02/03/16	2 - 3	N	ND (2.1) *	5.8	150	ND (1.1) *	ND (1.1) *	ND (0.21) J	18	6.9	8.9	1.7	ND (0.11) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	30	46
	02/03/16	5 - 6	N	ND (2.1) *	5.3	210	ND (1) *	ND (1)	ND (0.21) J	25	9.1	10	1.7	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	37	48
	02/03/16	9 - 10	N	ND (2) *	7.1	140	ND (1) *	ND (1)	ND (0.2) J	21	8.1	9.3	2	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	32	56

TABLE 3-7a

Sample Results: Metals
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC11-6	01/06/16	0 - 1	N	ND (2.2) *	8.7	500	ND (1.1) *	ND (1.1) *	ND (0.22)	20	7.2	12	21	ND (0.11) *	1.7	18	ND (1.1)	ND (1.1)	ND (2.2) *	31	67
	01/06/16	2 - 3	N	ND (2) *	8.3	490	ND (1) *	ND (1)	ND (0.2)	20	7.4	9.5	24	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	32	62
	01/06/16	5 - 6	N	ND (2.1) *	7.9	300	ND (1) *	ND (1)	ND (0.21)	25	8.9	10	2.4	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	34	59
	01/06/16	9 - 10	N	ND (2) *	11	150	ND (1) *	ND (1)	ND (0.21)	14	7.4	9.1	6.1	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	45	79
AOC11-7	01/06/16	0 - 1	N	ND (2.2) *	4.6	120	ND (1.1) *	ND (1.1) *	ND (0.22)	11	6.1	8	220	ND (0.11) *	ND (1.1)	8	ND (1.1)	ND (1.1)	ND (2.2) *	25	40
	01/06/16	2 - 3	N	ND (2.1) *	4.1	170	ND (1) *	ND (1)	0.52	15	5.7	11	30	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2.1) *	23	70
	01/06/16	5 - 6	N	ND (2) *	9	250	ND (1) *	ND (1)	ND (0.2)	15	9	7.5	8.5	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	55	79
AOC11-8	12/06/15	0 - 1	N	ND (2) *	4	77	ND (1) *	ND (1)	ND (0.2)	12	5	9.3	26	ND (0.1) *	ND (1)	7.5	ND (1)	ND (1)	ND (2) *	29	43
	12/06/15	2 - 3	N	ND (2) *	3.1	62	ND (1) *	ND (1)	ND (0.2)	9.6	4.6	8.1	28	ND (0.1) *	ND (1)	7.1	ND (1)	ND (1)	ND (2) *	25	45
AOC11-9	12/06/15	0 - 1	N	ND (2) *	3.3	57	ND (1) *	ND (1)	ND (0.2)	9.6	5.1	7.5	23	ND (0.1) *	ND (1)	7.8	ND (1)	ND (1)	ND (2) *	26	61
	12/06/15	2 - 3	N	ND (2) *	3.2	72	ND (1) *	ND (1)	ND (0.2)	11	5.5	8.6	13	ND (0.1) *	ND (1)	8.6	ND (1)	ND (1)	ND (2) *	32	63
AOC11a-1	09/21/08	0 - 0.5	N	ND (2) *	6	170	ND (2) *	ND (1)	ND (0.403)	19	5.8	12	9.9	ND (0.1) *	ND (2) *	13	ND (1)	ND (2)	ND (4) *	23	46
	09/21/08	2 - 3	N	ND (2.1) J*	6.4	190	ND (2.1) *	ND (1)	ND (0.411)	23	6.6	14	20	ND (0.1) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.1) *	30	58
	09/21/08	5 - 6	N	ND (2) *	4.6	190	ND (1) *	ND (1)	ND (0.41)	22	7.1	9	4.7	ND (0.1) *	ND (1)	14	1.6	ND (1)	ND (2) *	31	44
	09/21/08	9 - 10	N	ND (2) *	6.9	190	ND (2) *	ND (1)	3	19	5.8	10	9.2	ND (0.1) J*	ND (2) *	13	ND (1)	ND (2)	ND (4) *	22	44
AOC11a-2	09/21/08	0 - 0.5	N	ND (2.1) *	8.3	210	ND (2.1) *	ND (1)	0.417	32	6.8	20	15	ND (0.11) *	ND (2.1) *	18	ND (2.1) *	ND (2.1)	ND (4.1) *	32	75
	09/21/08	2 - 3	N	ND (2.1) *	5.5	220	ND (2.1) *	ND (1)	ND (0.413)	19	6.9	10	7.7	ND (0.11) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.2) *	32	42
	09/21/08	5 - 6	N	ND (2) *	5.5	1,300	ND (2) *	ND (1)	ND (0.408)	25	8.9	14	3.4	ND (0.1) *	ND (2) *	19	ND (2) *	ND (2)	ND (4.1) *	41	56
	09/21/08	9 - 10	N	ND (2) *	5.2	480	ND (1) *	ND (1)	ND (0.412)	19	8.3	6.5	2.2	ND (0.1) J*	1	14	ND (1)	ND (1)	ND (2) *	35	47
AOC11a-3	09/20/08	0 - 0.5	N	ND (2) *	6.9	190	ND (2) *	ND (1)	ND (0.411)	22	6.1	16	13	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4.1) *	24	62
	09/20/08	2 - 3	N	ND (2.1) *	6.6	220	ND (2.1) *	ND (1)	ND (0.423)	24	7	14	17	ND (0.1) *	2.2	16	ND (1)	ND (2.1)	ND (4.2) *	30	63
	09/20/08	2 - 3	FD	ND (2.1) *	7.4	220	ND (2.1) *	ND (1)	ND (0.418)	24	7.1	14	16	ND (0.1) *	2.4	16	ND (1)	ND (2.1)	ND (4.2) *	31	61
	09/20/08	5 - 6	N	ND (2.1) *	6.8	410	ND (2.1) *	ND (1)	0.634	76	7.4	15	25	ND (0.1) *	ND (2.1) *	17	ND (1)	ND (2.1)	ND (4.1) *	36	75
	09/20/08	9 - 10	N	ND (2) *	5.4	110	ND (1) *	ND (1)	ND (0.407)	23	8.1	11	2.9	ND (0.1) J*	1.1	17	ND (1)	ND (1)	ND (2) *	33	48
AOC11a-4	09/20/08	0 - 0.5	N	ND (2) *	7.7	180	ND (2) *	ND (1)	ND (0.409)	25	6.4	18	17	ND (0.1) *	ND (2) *	17	ND (1)	ND (2)	ND (4.1) *	28	79
	09/20/08	2 - 3	N	ND (2) *	6.2	210	ND (2) *	ND (1)	ND (0.41)	27	8.5	13	8	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4.1) *	37	52
	09/20/08	5 - 6	N	ND (2) *	5	140	ND (2) *	ND (1)	ND (0.407) J	25	8.7	11	3.7	ND (0.1) *	ND (2) *	19	ND (1)	ND (2)	ND (4.1) *	38	54
	09/20/08	9 - 10	N	ND (2) *	7.5	640	ND (2) *	ND (1)	ND (0.41)	27	9.6	14	3.5	ND (0.1) J*	ND (2) *	22	ND (1)	ND (2)	ND (4.1) *	43	59
AOC11a-5	09/21/08	0 - 0.5	N	ND (2.1) *	7.8	210	ND (2.1) *	ND (1)	0.652	32	6.8	17	14	ND (0.1) *	ND (2.1) *	16	ND (1)	ND (2.1)	ND (4.1) *	32	71
	09/21/08	2 - 3	N	ND (2.1) *	6	370	ND (2.1) *	ND (1)	ND (0.412)	30	8.5	12	9.4	ND (0.1) *	2.5	18	ND (1)	ND (2.1)	ND (4.2) *	38	57
	09/21/08	5 - 6	N	ND (2.1) *	4.4	82	ND (1) *	ND (1)	ND (0.411)	18	8.7	9.2	3	ND (0.1) *	1.5	14	ND (1)	ND (1)	ND (2.1) *	34	53
	09/21/08	5 - 6	FD	ND (2) *	4.1	84	ND (1) *	ND (1)	ND (0.412)	18	8	9.6	3.1	ND (0.1) *	1.6	14	3.2	ND (1)	ND (2) *	33	51
	09/21/08	9 - 10	N	ND (2.1) J*	7.6	1,000	ND (2.1) *	ND (1)	ND (0.415)	24	8.4	9.8	3.1	ND (0.1) J*	2.5	19	ND (1)	ND (2.1)	ND (4.1) *	37	62
AOC11a-SS-1	09/21/08	0 - 0.5	N	ND (2) *	3.6	88	ND (1) *	ND (1)	ND (0.402)	13	3.2	9.4	5.6	ND (0.1) J*	1.1	7.8	ND (1)	ND (1)	ND (2) *	13	54
	09/21/08	2 - 3	N	ND (2) *	7.2	130	ND (2) *	ND (1)	ND (0.404)	19	6.7	8.9	6	ND (0.1) J*	ND (2) *	14	ND (1)	ND (2)	ND (4) *	29	48
	09/21/08	5 - 6	N	ND (2) *	6.1	77	ND (1) *	ND (1)	ND (0.408)	16	6.7	7.6	3	ND (0.1) J*	ND (1)	13	ND (1)	ND (1)	ND (2) *	29	42
	09/21/08	9 - 10	N	ND (2) *	6.6	230	ND (1) *	ND (1)	ND (0.414)	13	6.2	7	3	ND (0.1) J*	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	40

TABLE 3-7a

Sample Results: Metals
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC11a-SS-2	09/21/08	0 - 0.5	N	ND (2) *	5.2	120	ND (1) *	ND (1)	ND (0.414)	15	5.1	8.1	7.1	ND (0.1) J*	ND (1)	11	ND (1)	ND (1)	ND (2) *	21	42
	09/21/08	2 - 3	N	ND (2) *	5.3	140	ND (1) *	ND (1)	ND (0.402)	19	6	15	5.9	ND (0.1) J*	ND (1)	14	ND (1)	ND (1)	ND (2) *	26	53
AOC11a-SS-3	09/20/08	0 - 0.5	N	ND (2) *	9	240	ND (2) *	ND (1)	0.622	29	6.8	17	16	ND (0.1) J*	ND (2) *	17	ND (1)	ND (2)	ND (4) *	27	73
	09/20/08	2 - 3	N	ND (2) *	8.8	270	ND (2) *	ND (1)	ND (0.409)	27	8.5	15	5.7	ND (0.1) J*	ND (2) *	19	ND (1)	ND (2)	ND (4.1) *	38	57
	09/20/08	5 - 6	N	ND (2) *	8.5	51	ND (1) *	ND (1)	ND (0.412)	19	6.8	9.5	3.7	ND (0.1) J*	1.1	14	ND (1)	ND (1)	ND (2) *	32	46
	09/20/08	9 - 10	N	ND (2.1) *	7.1	150	ND (1) *	ND (1)	ND (0.413)	24	7.7	11	3	ND (0.1) J*	1.4	19	ND (1)	ND (1)	ND (2.1) *	30	48
AOC11b-1	09/17/08	0 - 0.5	N	ND (2) J*	6.7	200 J	ND (5) *	ND (1)	ND (0.402)	27	8.1	16	25	ND (0.1) *	ND (5) *	20	ND (1)	ND (5)	ND (10) *	41	71
	09/17/08	0 - 0.5	FD	ND (2) *	6.4	180	ND (5) *	ND (1)	0.553	25	8.1	15	12	ND (0.1) *	ND (5) *	19	ND (1)	ND (5)	ND (10) *	38	68
	09/17/08	2 - 3	N	ND (2) *	5.2	110	ND (2) *	ND (1)	ND (0.404)	17	3.6	7	8.2	ND (0.1) *	ND (2) *	8.9	ND (1)	ND (2)	ND (4) *	33	28
	09/17/08	5 - 6	N	ND (2) *	6.2	230	ND (2) *	ND (1)	ND (0.411)	21	6.5	15	22	ND (0.1) *	ND (2) *	15	ND (1)	ND (2)	ND (4.1) *	37	72
	09/17/08	9 - 10	N	ND (2.1) *	6	250	ND (2.1) *	ND (1)	ND (0.411)	20	5.7	13	13	ND (0.1) J*	ND (2.1) *	15	ND (1)	ND (2.1)	ND (4.1) *	33	65
AOC11b-2	09/17/08	0 - 0.5	N	ND (2) *	4.8	190	ND (2) *	ND (1)	0.645	21	5.6	13	45	ND (0.1) *	ND (2) *	13	ND (1)	ND (2)	ND (4) *	30	76
	09/17/08	2 - 3	N	ND (2) *	13	270	ND (5.1) *	ND (1)	ND (0.41)	32	9.1	15	7.6	ND (0.1) *	ND (5.1) *	20	ND (1)	ND (5.1)	ND (10) *	43	74
	09/17/08	5 - 6	N	ND (2) *	10	150	ND (5.1) *	ND (1)	ND (0.411)	24	8.3	14	5.9	ND (0.1) *	ND (5.1) *	18	ND (1)	ND (5.1)	ND (10) *	40	75
	09/17/08	9 - 10	N	ND (2) *	9	330	ND (5.1) *	ND (1)	ND (0.407)	24	8.3	15	8.2	ND (0.1) J*	ND (5.1) *	18	ND (1)	ND (5.1)	ND (10) *	40	86
AOC11c-1	09/21/08	0 - 0.5	N	ND (2) *	4.8	120	ND (2) *	ND (1)	ND (0.4)	26	4.8	9.7	30	ND (0.098) *	2.7	9.8	ND (1)	ND (2)	ND (4) *	19	47
	09/22/08	2 - 3	N	ND (2.1) *	7.9	220	ND (2.1) *	ND (1)	2.03	64	6.5	20	26	ND (0.11) *	2.1	16	ND (1)	ND (2.1)	ND (4.1) *	32	110
	09/22/08	2 - 3	FD	ND (2.1) *	7.4	220	ND (2.1) *	ND (1)	1.47	63	6.5	19	25	ND (0.11) *	2.3	16	ND (1)	ND (2.1)	ND (4.1) *	31	110
	09/22/08	5 - 6	N	ND (2.1) *	7.7	200	ND (2.1) *	ND (1)	2.03	64	7.4	20	24	ND (0.1) *	ND (2.1) *	18	ND (1)	ND (2.1)	ND (4.1) *	35	110
	09/22/08	9 - 10	N	ND (2) *	5.3	140	ND (2) *	ND (1)	3.33	130	5.8	17	11	ND (0.1) J*	ND (2) *	13	ND (1)	ND (2)	ND (4.1) *	24	62
AOC11c-2	09/21/08	0 - 0.5	N	ND (2) *	5.1	170	ND (2) *	ND (1)	0.744	26	5.7	12	11	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4) *	23	52
	09/22/08	2 - 3	N	ND (2.1) *	7.6	220	ND (2.1) *	ND (1.1) *	2.74	81	6.8	21	28	ND (0.11) *	2.7	16	ND (1.1)	ND (2.1)	ND (4.3) *	32	130
	09/22/08	5 - 6	N	ND (2.1) *	6.6	190	ND (2.1) *	ND (1)	1.3	56	6	16	18	ND (0.11) *	ND (2.1) *	14	ND (1)	ND (2.1)	ND (4.2) *	27	93
	09/22/08	9 - 10	N	ND (2) *	6.3	160	ND (2) *	ND (1)	2.05	70	6.2	16	10	ND (0.1) J*	ND (2) *	14	ND (1)	ND (2)	ND (4) *	27	70
AOC11C-3	02/03/16	14 - 15	N	ND (2.1) *	4.3	38	ND (1.1) *	ND (1.1) *	0.67 J	18	7.7	8.4	2.2	ND (0.1) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	33	42
	02/03/16	19 - 20	N	ND (2.1) *	4.3	53	ND (1) *	ND (1)	ND (0.21) J	17	8.1	9.7	1.6	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	36	42
	02/03/16	29 - 30	N	ND (2) *	2.9	53	ND (1) *	ND (1)	ND (0.2) J	27	10	14	ND (1)	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2) *	42	39
AOC11c-4	01/28/16	0 - 1	N	ND (2.1) J*	3.6	89 J	ND (1) *	ND (1)	0.38	16	5.4	7.4	3.1	ND (0.1) *	ND (1)	11	ND (1) J	ND (1)	ND (2.1) *	21	31
	01/28/16	2 - 3	N	ND (2) *	3.6	58	ND (1) *	ND (1)	ND (0.2)	12	6.2	9.2	1.8	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	29	34
	01/28/16	5 - 6	N	ND (2) *	3.5	39	ND (1) *	ND (1)	ND (0.2)	13	7.4	8.9	2.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	35	62
	01/28/16	9 - 10	N	ND (2) *	3.3	70 J	ND (1) *	ND (1)	ND (0.2)	18	8.4	8.4	1.7	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	36	67
	01/28/16	9 - 10	FD	ND (2) *	3.2	53 J	ND (1) *	ND (1)	ND (0.2)	16	8	7.7	1.5	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	35	63
	02/02/16	14 - 15	N	ND (2) *	2.4	240	ND (1) *	ND (1)	0.25	21	7.8	7.8	ND (1)	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	38
	02/02/16	19 - 20	N	ND (2) *	3.4	270	ND (1) *	ND (1)	ND (0.2)	17	6.8	8.1	1.1	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	30	37
AOC11c-SS-1	09/21/08	0 - 0.5	N	ND (2) *	3.6	75	ND (1) *	ND (1)	ND (0.401)	12	3.3	5.2	6.8	ND (0.1) J*	ND (1)	6.8	ND (1)	ND (1)	ND (2) *	14	23
	09/22/08	2 - 3	N	ND (2) *	4.3	91	ND (1) *	ND (1)	ND (0.403)	16	4.4	11	5.5	ND (0.1) J*	ND (1)	8.6	ND (1)	ND (1)	ND (2) *	17	30
	09/22/08	5 - 6	N	ND (2) *	6.9	160	ND (2) *	ND (1)	1.14	37	6.1	13	11	ND (0.1) J*	2.9	14	ND (1)	ND (2)	ND (4.1) *	25	57
	09/22/08	9 - 10	N	ND (2) *	5.8	110	ND (2) *	ND (1)	ND (0.408)	19	5.9	6.2	5	ND (0.1) J*	ND (2) *	12	ND (1)	ND (2)	ND (4.1) *	21	31

TABLE 3-7a

Sample Results: Metals
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC11c-SS-2	09/22/08	0 - 0.5	N	ND (2) *	3.5	71	ND (1) *	ND (1)	ND (0.401)	14	3.4	4.9	8	ND (0.1) J*	ND (1)	6.6	ND (1)	ND (1)	ND (2) *	14	25
	09/22/08	2 - 3	N	ND (2) *	3.6	77	ND (1) *	ND (1)	ND (0.402)	16	3.9	4.9	6.5	ND (0.1) J*	ND (1)	7.5	ND (1)	ND (1)	ND (2) *	16	30
	09/22/08	5 - 6	N	ND (2) *	3.6	100	ND (1) *	ND (1)	7.78	32	4.2	11	8.9	ND (0.1) J*	ND (1)	9.2	ND (1)	ND (1)	ND (2) *	18	54
	09/22/08	9 - 10	N	ND (2.1) *	3.4	98	ND (1) *	ND (1)	2.06	73	3.4	30	8.6	ND (0.1) J*	ND (1)	7.7	ND (1)	ND (1)	ND (2.1) *	15	290
AOC11d-1	09/23/08	0 - 0.5	N	ND (2.1) J*	9.5	310 J	ND (2.1) *	ND (1)	0.677	31	8.2	19	16	ND (0.1) *	ND (2.1) *	18	ND (1)	ND (2.1)	ND (4.1) *	43	73
	09/23/08	0 - 0.5	FD	ND (2) *	9.2	250 J	ND (2) *	ND (1)	0.628	33	8.6	20	14	ND (0.1) *	ND (2) *	19	ND (1)	ND (2)	ND (4) *	44	76
	09/23/08	2.5 - 3	N	ND (2.1) *	4.5	86	ND (1) *	ND (1)	ND (0.414)	24	9	12	4.8	ND (0.1) *	1.2	17	ND (1)	ND (1)	ND (2.1) *	32	48
	09/23/08	5 - 6	N	ND (2.1) *	5.9	94	ND (2.1) *	ND (1)	ND (0.416)	29	8.4	12	5	ND (0.1) *	ND (2.1) *	21	ND (1)	ND (2.1)	ND (4.1) *	39	52
	09/23/08	9 - 10	N	ND (2.1) *	8.6	180	ND (2.1) *	ND (1)	0.659	28	7.1	11	9.3	ND (0.1) J*	ND (2.1) *	16	ND (1)	ND (2.1)	ND (4.1) *	31	49
AOC11e-1	09/23/08	0 - 0.5	N	ND (2) *	5.8	180	ND (2) *	ND (1)	0.959	43	5.4	10	10	ND (0.098) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	22	54
	09/23/08	2.5 - 3	N	ND (2) *	3.4	110	ND (1) *	ND (1)	3.19	92	5.8	41	9	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	26	170
	09/23/08	5.5 - 6	N	ND (2) *	4	100	ND (1) *	ND (1)	0.961	48	5.8	17	6.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	28	59
	09/23/08	9.5 - 10	N	ND (2) *	4.6	110	ND (1) *	ND (1)	3.2	84	4.6	31	13	ND (0.1) J*	ND (1)	9.8	ND (1)	ND (1)	ND (2) *	20	140
AOC11e-2	09/24/08	0 - 0.5	N	ND (2) *	4.8	140	ND (1) *	ND (1)	1.4	37	5.1	12	28	ND (0.1) *	1.1	11	ND (1)	ND (1)	ND (2) *	24	160
	09/24/08	2 - 3	N	ND (2) *	3	88	ND (1) *	ND (1)	3.78	130	3.4	19	11	ND (0.099) *	2.6	7.1	ND (1)	ND (1)	ND (2) *	14	130
	09/24/08	2 - 3	FD	ND (2.2) *	3.3	78	ND (1.1) *	ND (1.1) *	3.51	130	3.5	18	11	ND (0.11) *	2.9	7.3	ND (1.1)	ND (1.1)	ND (2.2) *	15	120
	09/24/08	5 - 6	N	ND (2) *	3.3	100	ND (1) *	ND (1)	2.25	98	4.7	30	9.6	ND (0.1) *	1.3	9.3	ND (1)	ND (1)	ND (2) *	20	150
	09/24/08	9 - 10	N	ND (2.1) *	5.2	100	ND (2.1) *	ND (1)	ND (0.436)	36	8.6	19	4.6	ND (0.11) J*	ND (2.1) *	19	ND (1)	ND (2.1)	ND (4.2) *	38	53
AOC11e-3	01/08/16	0 - 1	N	ND (2) *	3.8	80 J	ND (1) *	ND (1)	2.3 J	16	3.4	6.3	5.9	ND (0.1) *	ND (1)	6	ND (1)	ND (1)	ND (2) *	17	24
	01/08/16	0 - 1	FD	ND (2) *	3.3	100 J	ND (1) *	ND (1)	0.44 J	17	3.7	6.5	5.5	ND (0.1) *	ND (1)	6.5	ND (1)	ND (1)	ND (2) *	17	27
	01/10/16	2 - 3	N	ND (2) *	3.6	110	ND (1) *	ND (1)	ND (0.2)	11	4.1	6.7	3.6	ND (0.1) *	ND (1)	7.3	ND (1)	ND (1)	ND (2) *	19	21
	01/10/16	5 - 6	N	ND (2.2) *	4.9	180	ND (1.1) *	ND (1.1) *	ND (0.22)	19	5.4	7.5	4.5	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2) *	26	29
	01/10/16	9 - 10	N	ND (2.1) *	4.5	170	ND (1) *	ND (1)	ND (0.21)	12	4.7	6.9	4.4	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2.1) *	22	25
	01/10/16	13 - 14	N	ND (2) *	4	120	ND (1) *	ND (1)	ND (0.2)	11	3.9	5.9	3.3	ND (0.1) *	ND (1)	7.3	ND (1)	ND (1)	ND (2) *	18	35
AOC11e-4	01/28/16	0 - 1	N	ND (2) *	4.8	58	ND (1) *	ND (1)	1.2	16	4.1	7.4	4.3	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	20	33
	01/28/16	2 - 3	N	ND (2.1) *	2.7	51	ND (1) *	ND (1)	2.1	32	4.2	9	7	ND (0.1) *	ND (1)	7.2	ND (1)	ND (1)	ND (2.1) *	16	42
	01/28/16	5 - 6	N	ND (2.1) *	2.7	45	ND (1.1) *	ND (1.1) *	0.74	27	3.4	22	3.5	ND (0.1) *	ND (1.1)	6.8	ND (1.1)	ND (1.1)	ND (2.1) *	15	76
	01/28/16	14 - 15	N	ND (2) *	1.8	36	ND (1) *	ND (1)	ND (0.2)	17	8	22	1.7	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	34	35
AOC11e-5	01/19/16	14 - 15	N	ND (2.1) *	2.7	93 J	ND (1.1) *	ND (1.1) *	ND (0.21)	34 J	11	21 J	2	ND (0.11) *	ND (1.1)	25 J	ND (1.1) J	ND (1.1)	ND (2.1) *	41 J	48 J
	01/19/16	19 - 20	N	ND (2.1) *	2.2	60	ND (1) *	ND (1)	ND (0.21)	40	11	16	2.4	ND (0.1) *	1.5	19	ND (1)	ND (1)	ND (2.1) *	35	38
	01/19/16	29 - 30	N	ND (2.1) *	2.3	30	ND (1.1) *	ND (1.1) *	ND (0.21)	18	8	11	1.7	ND (0.1) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	30	34
	01/19/16	39 - 40	N	ND (2.2) *	3.8	37	ND (1.1) *	ND (1.1) *	ND (0.21)	30	9.1	8.3	2	ND (0.11) *	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.2) *	36	38
	01/20/16	49 - 50	N	ND (2.1) *	2	55	ND (1) *	ND (1)	ND (0.21)	17	8.9	11	1.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	31	36
	01/21/16	59 - 60	N	ND (2.1) *	3.1	54	ND (1.1) *	ND (1.1) *	ND (0.21)	25	10	12	2	ND (0.1) *	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.1) *	41	45
	01/21/16	69 - 70	N	ND (2.2) *	4.7	28	ND (1.1) *	ND (1.1) *	ND (0.22)	24	8.5	12	2.8	ND (0.11) *	ND (1.1)	22	ND (1.1)	ND (1.1)	ND (2.2) *	41	47
AOC11e-6	12/03/15	0 - 1	N	ND (2.1) *	4.6	130	ND (1) *	ND (1)	16	320	4.9	12	8.4	ND (0.1) *	1.6	9.6	ND (1)	ND (1)	ND (2.1) *	18	37

TABLE 3-7a

Sample Results: Metals
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC11e-SS-1	09/23/08	0 - 0.5	N	ND (2) J*	4.6	96 J	ND (1) *	ND (1)	0.698	20	3.9	8.7	8.6	ND (0.1) J*	ND (1)	8.7	ND (1)	ND (1)	ND (2) *	18	35 J
	09/23/08	2.5 - 3	N	ND (2) *	4.6	87	ND (1) *	ND (1)	ND (0.411)	21	4.5	7.7	4.8	ND (0.1) J*	ND (1)	8.3	ND (1)	ND (1)	ND (2) *	20	27
	09/23/08	5.5 - 6	N	ND (2) *	4.6	110	ND (1) *	ND (1)	ND (0.407)	9.2	3.8	5.1	5.2	ND (0.1) J*	ND (1)	6	ND (1)	ND (1)	ND (2) *	16	20
	09/23/08	9.5 - 10	N	ND (2) *	4.7	100	ND (1) *	ND (1)	ND (0.407)	10	3.2	10	5.4	ND (0.1) J*	ND (1)	6.3	ND (1)	ND (1)	ND (2) *	15	19
AOC11e-SS-2	09/23/08	0 - 0.5	N	ND (2) *	4.5	120	ND (1) *	ND (1)	1.38	28	4.3	8.1	9.5	ND (0.1) J*	ND (1)	8.7	ND (1)	ND (1)	ND (2) *	17	39
	09/23/08	2.5 - 3	N	ND (2) *	6.6	110	ND (2) *	ND (1)	0.438	21	6.2	9.7	7.4	ND (0.1) J*	ND (2) *	13	ND (1)	ND (2)	ND (4.1) *	24	35
	09/23/08	5.5 - 6	N	ND (2.1) *	4.8	98	ND (1) *	ND (1)	0.466	26	6.3	10	5.1	ND (0.1) J*	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	28	39
	09/23/08	5.5 - 6	FD	ND (2) *	4.5	100	ND (1) *	ND (1)	0.437	27	5.6	9.6	5.5	ND (0.1) J*	ND (1)	11	ND (1)	ND (1)	ND (2) *	24	37
	09/23/08	9.5 - 10	N	ND (2.1) *	4.5	100	ND (1.1) *	ND (1.1) *	0.5	21	7.4	11	3.8	ND (0.11) J*	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	34	37
AOC11g-OS1	04/06/11	8.5 - 9	N	ND (2) *	8.3	220	ND (1) *	ND (1)	ND (0.4) J	26	9.6	11	4.1	ND (0.1) J*	7.1	18	ND (1)	ND (1)	ND (2) *	45	61
PA-07	11/09/15	0 - 1	N	ND (2) *	4.9	160	ND (1) *	ND (1)	1.9	66	4.9	19	17	ND (0.1) *	1.3	13	ND (1)	ND (1)	ND (2) *	22	170
PA-09	01/27/16	0 - 1	N	ND (2) *	4.2	95	ND (1) *	ND (1)	ND (0.2)	21	6.7	13	150	0.18	ND (1)	13	ND (1)	ND (1)	ND (2) *	32	130
PA-10	01/27/16	0 - 1	N	ND (2.1) *	7	150	ND (1) *	ND (1)	0.95	40	4.3	24	56	ND (0.1) *	ND (1)	8	ND (1)	ND (1)	ND (2.1) *	20	190
PA-11	01/27/16	0 - 1	N	ND (2.1) *	4.3	140	ND (1) *	ND (1)	0.35	63	5.6	23	28	ND (0.1) *	3.3	16	ND (1)	ND (1)	ND (2.1) *	20	300
	01/25/17	2 - 3	N	ND (2.1) *	4.9	180	ND (1) *	ND (1)	---	10	4	7.1	4.7	ND (0.1) *	ND (1)	7.4	ND (1) J	ND (1)	ND (2.1) *	19	29
	01/25/17	2 - 3	FD	ND (2.1) *	4.7	160	ND (1) *	ND (1)	---	10	3.9	6.9	3.7	ND (0.1) *	ND (1)	7.4	ND (1) J	ND (1)	ND (2.1) *	18	24
PA-12	01/27/16	0 - 1	N	ND (2.1) *	6	190	ND (1) *	ND (1)	0.56	50	5.3	31	12	ND (0.1) *	3.1	13	ND (1)	ND (1)	ND (2.1) *	25	130
	01/25/17	2 - 3	N	ND (2.1) *	5.6	150	ND (1) *	ND (1)	---	13	4.7	9.7	5.7	ND (0.1) *	ND (1)	8.3	ND (1) J	ND (1)	ND (2.1) *	18	37 J
SD-08	11/11/15	0 - 1	N	ND (2) *	3.2	91	ND (1) *	ND (1)	ND (0.2)	9.2 J	5.2	6	5.3 J	ND (0.1) *	ND (1)	6.7 J	ND (1)	ND (1)	ND (2) *	16	31
	11/11/15	0 - 1	FD	ND (2) *	3.1	88	ND (1) *	ND (1)	0.26	12 J	3.8	13	6.8 J	ND (0.1) *	ND (1)	8.7 J	ND (1)	ND (1)	ND (2) *	18	37
	11/11/15	2 - 3	N	ND (2) *	8.9	92	ND (1) *	ND (1)	2.7	34	4	35	7.8	ND (0.1) *	ND (1)	8.4	ND (1)	ND (1)	ND (2) *	23	97
SD-09	11/10/15	0 - 1	N	ND (2.1) *	4.3	260	ND (1) *	ND (1)	ND (0.21)	11	4.3	6.4	3.8	ND (0.11) *	ND (1)	9.4	ND (1)	ND (1)	ND (2.1) *	22	25
	11/10/15	2 - 3	N	ND (2.1) *	4.6	240	ND (1.1) *	ND (1.1) *	ND (0.21)	11	4.3	5.6	3.1	ND (0.1) *	ND (1.1)	8.7	ND (1.1)	ND (1.1)	ND (2.1) *	21	21
	11/10/15	5 - 6	N	ND (2.1) J*	5.3	260	ND (1.1) *	ND (1.1) *	ND (0.21)	12	4.4	7.1	4.3	ND (0.1) *	ND (1.1)	8.9	ND (1.1)	ND (1.1)	ND (2.1) *	25	24
SD-10	11/10/15	0 - 1	N	ND (2) *	3.3	83	ND (1) *	ND (1)	ND (0.2)	7.9	2.7	6.7	6.1	ND (0.1) *	ND (1)	5.6	ND (1)	ND (1)	ND (2) *	14	36
	11/10/15	2 - 3	N	ND (2) *	2.4	82	ND (1) *	ND (1)	1.4	27	4.2	9	16	0.37	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	19	180
SD-11	12/06/15	0 - 0.5	N	ND (2) *	2.9	99	ND (1) *	ND (1)	ND (0.2)	38	4.5	14	22	ND (0.1) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	22	1,100
	12/06/15	2 - 3	N	ND (2) *	2.7	62	ND (1) *	ND (1)	1	21	3.3	10	6.2	ND (0.1) *	ND (1)	6	ND (1)	ND (1)	ND (2) *	17	42
SD-11A	03/07/16	0 - 1	N	ND (2) *	3.7	88	ND (1) *	ND (1)	0.51	110	3.8	19	20	ND (0.1) *	ND (1)	7.3	ND (1)	ND (1)	ND (2) *	18	170
	03/07/16	2 - 3	N	ND (2.1) *	2.9	90	ND (1) *	ND (1)	0.63	90	4.5	44	36	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2.1) *	21	310
	03/07/16	5 - 6	N	ND (2.1) *	2.6	71	ND (1) *	ND (1)	0.79	23	3.7	11	11	ND (0.1) *	ND (1)	6.6	ND (1)	ND (1)	ND (2.1) *	18	88
SD-12	11/10/15	0 - 1	N	ND (2) *	2.8	79	ND (1) *	ND (1)	ND (0.2)	8.1	2.7	5.1	7.2	ND (0.1) *	ND (1)	5.1	ND (1)	ND (1)	ND (2) *	15	38
	11/10/15	2 - 3	N	ND (2) *	2.5	92	ND (1) *	ND (1)	0.51	16	4.4	8.9	4.1	ND (0.1) *	ND (1)	7.7	ND (1)	ND (1)	ND (2) *	19	27
SD-13	11/10/15	0 - 1	N	ND (2) *	3.2	100	ND (1) *	ND (1)	0.92	33	4.7	7.8	3.6	ND (0.1) *	ND (1)	7.9	ND (1)	ND (1)	ND (2) *	19	30
	11/10/15	2 - 3	N	ND (2.1) *	2.4	70	ND (1.1) *	ND (1.1) *	0.34	25	7.7	9.4	3	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	33	40

TABLE 3-7a

Sample Results: Metals
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
SD-20	11/11/15	0 - 1	N	ND (2) J*	3.4	100 J	ND (1) *	ND (1)	0.5	18 J	4.2	7.1	5.3	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	21	48 J
	11/11/15	0 - 1	FD	ND (2) *	3.1	74 J	ND (1) *	ND (1)	0.61	14 J	3.5	7.3	4.6	ND (0.099) *	ND (1)	7.4	ND (1)	ND (1)	ND (2) *	18	71 J
	11/11/15	2 - 3	N	ND (2) *	3.8	75	ND (1) *	ND (1)	ND (0.2)	8.9	2.6	4.3	2.7	ND (0.1) *	ND (1)	4.3	ND (1)	ND (1)	ND (2) *	13	17
SD-23	03/09/16	0 - 1	N	ND (2.1) *	2.4	65	ND (1.1) *	ND (1.1) *	0.27	19	6.3	11	5.6	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	26	87
	03/09/16	2 - 3	N	ND (2.2) *	2.2	51	ND (1.1) *	ND (1.1) *	ND (0.22)	31	9.2	14	3	ND (0.11) *	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.2) *	38	39
SD-27	02/15/17	2 - 3	N	ND (2.1) *	2.4	56	ND (1) *	1.2	ND (0.21)	20	6.1	9	ND (1)	ND (0.1) *	ND (1)	12	ND (1) J	ND (1) J	ND (2.1) J*	23	34
SD-OS37	11/30/16	0 - 0.5	N	ND (2) *	3.5	120	ND (1) *	ND (1)	0.41	35	5.2	21	36	ND (0.1) *	ND (1)	12	ND (1) J	ND (1)	ND (2) J*	20	92
	11/30/16	3 - 3.5	N	ND (2) *	3.1	93	ND (1) *	ND (1)	0.24	16	3.2	9.4	5.4	ND (0.1) *	2.7	7	ND (1) J	ND (1)	ND (2) J*	13	24
	11/30/16	5 - 5.5	N	ND (2) *	2.9	110	ND (1) *	ND (1)	ND (0.2)	14	4.1	7.4	3.3	ND (0.1) *	ND (1)	11	ND (1) J	ND (1)	ND (2) J*	16	20

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-7b

Sample Results: Contract Laboratory Program Inorganics
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC11-8	12/06/15	0 - 1	N	4,400	15,000	15,000	2,900	200	1,200	190	ND (0.203)
	12/06/15	2 - 3	N	4,300	16,000	15,000	2,900	200	1,400	280	ND (0.204)
AOC11-9	12/06/15	0 - 1	N	4,600	14,000	18,000	3,200	190	1,600	180	ND (0.204)
	12/06/15	2 - 3	N	5,100	20,000	21,000	3,700	250	1,700	300	ND (0.205)
AOC11a-1	09/21/08	0 - 0.5	N	11,000	33,000	14,000	8,500	330	2,500	580	ND (1.01) *
AOC11a-2	09/21/08	0 - 0.5	N	20,000	45,000	20,000	12,000	350	5,000	710	ND (1.03) *
AOC11a-3	09/20/08	0 - 0.5	N	15,000	42,000	16,000	11,000	320	3,400	530	ND (1.03) *
AOC11b-1	09/17/08	0 - 0.5	N	11,000	27,000	26,000	8,200	440	2,400	180	ND (1) *
	09/17/08	0 - 0.5	FD	11,000	25,000	25,000	8,300	430	2,200	180	ND (1.01) *
AOC11c-2	09/21/08	0 - 0.5	N	9,000	33,000	13,000	8,400	300	2,500	430	ND (1) *
AOC11d-1	09/23/08	0 - 0.5	N	19,000 J	43,000 J	21,000 J	11,000 J	390 J	4,900	450	ND (1.04) *
	09/23/08	0 - 0.5	FD	19,000	33,000 J	23,000	12,000	400	5,300	440	ND (1.01) *
AOC11e-2	09/24/08	0 - 0.5	N	7,900	23,000	12,000	6,400	220	2,300	ND (580)	ND (1.02) *
AOC11e-6	12/03/15	0 - 1	N	---	45,000	14,000	10,000	260	2,400	4,300	---
PA-11	01/25/17	2 - 3	N	6,300	36,000	8,800	5,600	180	1,600	590	ND (0.215) J
PA-12	01/25/17	2 - 3	N	6,800	27,000	11,000 J	5,900	200	1,700 J	820	ND (0.211) J
SD-08	11/11/15	0 - 1	N	4,600 J	20,000	8,700	4,300 J	150	1,400	170	ND (0.202) J
	11/11/15	0 - 1	FD	5,900 J	20,000	10,000	5,300 J	170	1,700	150	ND (0.203) J
	11/11/15	2 - 3	N	5,000	22,000	11,000	5,600	150	1,300	270	ND (0.204) J
SD-11	12/06/15	0 - 0.5	N	6,800	22,000	15,000	5,700	170	2,100	220	ND (0.202)
	12/06/15	2 - 3	N	4,600	21,000	8,200	4,800	130	1,100	480	ND (0.205)

TABLE 3-7b

Sample Results: Contract Laboratory Program Inorganics
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
SD-13	11/10/15	0 - 1	N	6,600	22,000	13,000	5,600	200	1,700	400	ND (0.205) J
	11/10/15	2 - 3	N	11,000	20,000	19,000	8,000	200	1,900	2,400	ND (0.212) J
SD-20	11/11/15	0 - 1	N	5,500	23,000	12,000	5,300	160	1,200	260 J	ND (0.202) J
	11/11/15	0 - 1	FD	4,100 J	18,000 J	9,600 J	4,400	150	1,000	250	ND (0.201) J
	11/11/15	2 - 3	N	3,500	28,000	6,800	5,500	130	860	270	ND (0.205) J

TABLE 3-7b

Sample Results: Contract Laboratory Program Inorganics
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-7c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
AOC11-4-OS6	06/11/14	0	N	ND (5)	ND (5)	ND (5)	ND (5)	5	26	34	110	11	28	58	ND (5)	86	ND (5)	12	ND (5)	18	79	23	444	52
AOC11-4-OS5	06/11/14	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	21	51	10	16	31	ND (5)	54	ND (5)	10	ND (5)	21	46	21	253	31
AOC11-4-OS4	06/11/14	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.7	ND (5)	ND (5)	ND (5)	ND (5)	6	ND (5)	ND (5)	ND (5)	ND (5)	5	ND	16.7	6.1
AOC11-4-OS3	06/11/14	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10	9.7	19	6.3	5.7	13	ND (5)	25	ND (5)	6.3	ND (5)	6.3	22	6.3	117	16
AOC11-4-OS1	06/11/14	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	5	6
AOC11-4-OS4	06/11/14	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC11-4-OS6	06/11/14	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.8	16	ND (5.3)	6.4	7.8	ND (5.3)	9.5	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.9	ND	57.4	13
AOC11-4-OS5	06/11/14	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	34 J	67 J	130 J	25	60 J	58 J	7	89 J	ND (5.2)	24	ND (5.2)	20	85 J	20	579	93
AOC11-4-OS3	06/11/14	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.4	10	20	7	6	12	ND (5)	17	ND (5)	5.7	ND (5)	5	16	5	100.1	16
AOC11-4-OS1	06/11/14	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	ND (5.3)	ND (5.3)	5.6	ND (5.3)	9.8	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.8	ND	32.2	6.6
AOC11-4-OS3	06/11/14	2 - 3	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	15 J	33 J	ND (5)	11 J	16	ND (5)	23	ND (5)	ND (5)	ND (5)	5.4	22	5.4	131	22
AOC11-4-OS4	06/11/14	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	9.6	ND (5.1)	ND (5.1)	5.5	ND (5.1)	7.9	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.2	ND	35.3	9.2
AOC11-4-OS5	06/11/14	5 - 6	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11 J	21 J	44 J	6.6	19 J	18 J	5.2 J	27 J	ND (5.2)	6.2	ND (5.2)	7.3	27 J	7.3	185	33
AOC11-1	01/05/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/05/16	0 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.2	14	28 J	7.2	7.5	13	ND (5.1)	22 J	ND (5.1)	6.8	ND (5.1)	7.5	20	7.5	125.7	21
	01/05/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/05/16	5 - 6	N	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	5.9	13	ND (5.9)	ND (5.9)	6.7	ND (5.9)	11	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	9.8	ND	46.4	11
	01/05/16	9 - 10	N	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND	ND	ND (8)
AOC11-2	01/05/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND	13.5	6
	01/05/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/05/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/05/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/05/16	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC11-3	01/05/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	5.1	17	ND (5.1)	5.8	11	ND (5.1)	24	ND (5.1)	ND (5.1)	ND (5.1)	5.4	21	5.4	89	10
	01/05/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/05/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	14	7.6	26	ND (5.2)	9.7	32	ND (5.2)	49	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	46	ND	184.3	15
	01/05/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/05/16	9 - 10	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC11-4	01/05/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/05/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	5.3	6.4
AOC11-5	02/03/16	0 - 0.5	N	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	ND (6.2)	14	23	57	11	24	41	ND (6.2)	75	ND (6.2)	10	ND (6.2)	15	63	15	318	34
	02/03/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	24	20	28	15	15	23	ND (5.3)	38	ND (5.3)	12	ND (5.3)	6	35	6	210	29
	02/03/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/03/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-7c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 11 – Topographic Low Areas
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC11-6	01/06/16	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND	10.8	6.5
	01/06/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/06/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/06/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11-7	01/06/16	0 - 1	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.2	8.1	16	ND (5.5)	7	12	ND (5.5)	17	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	17	ND	83.3	13
	01/06/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (58)
	01/06/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	ND	17.4	6.2
AOC11-8	12/06/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	15	24	54	7.7	13	30	ND (5.1)	50	ND (5.1)	8.4	ND (5.1)	16	48	16	250.1	34
	12/06/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND	19	6.3
AOC11-9	12/06/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND (51)	ND (51)	ND (51)	ND (51)	11	ND (51)	15	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	15	ND	47.1	57
	12/06/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	ND	18	6.1
AOC11a-1	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.2	5.2	5.2	6.8	ND (5)	8	ND (5)	ND (5)	ND (5)	ND (5)	7.7	ND	38.1	6.1
	09/21/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11a-2	09/21/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.5	10	9.3	9	12	ND (5.2)	15	ND (5.2)	7.5	ND (5.2)	ND (5.2)	13	ND	83.3	12
	09/21/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11a-3	09/20/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.5	9	8.9	9.5	12	ND (5.1)	15	ND (5.1)	7.3	ND (5.1)	ND (5.1)	13	ND	82.2	12
	09/20/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.3	5.7	ND (5.2)	6.2	7	ND (5.2)	7.5	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.1	ND	38.8	9.1
	09/20/08	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.8	ND (5.2)	6.9	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.3	ND	19	6
	09/20/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/20/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11a-4	09/20/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.3	8.4	8	8.9	13	ND (5.1)	18	ND (5.1)	5.6	ND (5.1)	ND (5.1)	14	ND	82.2	11
	09/20/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	26	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	26	5.9
	09/20/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/20/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11a-5	09/21/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	10	16	19	14	16	24	ND (5.2)	30	ND (5.2)	12	ND (5.2)	8.9	27	8.9	168	23
	09/21/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	8.1	5.8	6.5	7.6	ND (5.2)	8	ND (5.2)	5.4	ND (5.2)	ND (5.2)	8.1	ND	56.4	11
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-7c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC11a-SS-1	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.9	ND (5)	6.7	ND (5)	6.6	ND (5)	ND (5)	ND (5)	ND (5)	5.7	ND	25.9	5.8
	09/21/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/21/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/21/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11a-SS-2	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.3	5.4	ND (5)	ND (5)	ND (5)	5.9	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	16.6	6.1
	09/21/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC11a-SS-3	09/20/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	25	37	59	36	43	59	11	89	ND (5)	30	ND (5)	26	78	26	467	60
	09/20/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/20/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/20/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11b-1	09/17/08	0 - 0.5	N	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	44	65	98	52	41	88	ND (25)	120	ND (25)	49	ND (25)	30	110	30	667	97
	09/17/08	0 - 0.5	FD	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	50	59	85	52	39	78	ND (25)	120	ND (25)	47	ND (25)	28	110	28	640	90
	09/17/08	2 - 3	N	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	80	110	150	74	67	130	ND (25)	190	ND (25)	75	ND (5.6)	45	180	45	1,056	150
	09/17/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	21	31	44	19	21	38	5.1	56	ND (5.1)	19	ND (5.1)	14	53	14	307.1	45
	09/17/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	56	54	52	34	57	67	11	100	ND (5.1)	33	ND (5.1)	25	94	25	558	80
AOC11b-2	09/17/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	12	290	360	530	170	140	430	56	860	ND (5)	180	ND (5)	180	660	192	3,676	520
	09/17/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	18	24	13	10	21	ND (5.1)	34	ND (5.1)	13	ND (5.1)	9.5	30	9.5	177	26
	09/17/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/17/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11c-1	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	27	35	36	21	32	45	6.7	67	ND (5)	21	ND (5)	25	61	25	351.7	50
	09/22/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	52	68	66	60	73	90	19	400	ND (5.2)	58	ND (5.2)	48	370	48	1,256	110
	09/22/08	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	34	43	43	38	51	62	12	94	ND (5.2)	37	ND (5.2)	38	84	38	498	67
	09/22/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	31	46	49	46	54	60	12	78	ND (5.2)	44	ND (5.2)	24	74	24	494	71
	09/22/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11c-2	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	20	21	13	18	26	ND (5)	37	ND (5)	13	ND (5)	15	34	15	196	28
	09/22/08	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	75	110	99	98	140	140	28	180	ND (5.4)	95	ND (5.4)	61	170	61	1,135	170
	09/22/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.3	77	89	82	73	120 J	120	24	170	ND (5.2)	69	ND (5.2)	71	160	78.3	984	140
	09/22/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	17	23	23	20	30	31	5.7	40	ND (5.1)	18	ND (5.1)	12	37	12	244.7	35
AOC11C-3	02/03/16	14 - 15	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	15	ND (5.3)	ND (5.3)	16	ND (5.3)	ND (5.3)	18	ND (5.3)	ND (5.3)	ND (5.3)	ND	49	21
	02/03/16	19 - 20	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/03/16	29 - 30	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-7c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 11 – Topographic Low Areas
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC11c-4	01/28/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.5	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.5	ND	17.9	6.4
	01/28/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/28/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/28/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/28/16	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/02/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/02/16	19 - 20	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11c-SS-1	09/21/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5	ND (5)	ND (5)	ND (5)	5.1	ND (5)	ND (5)	ND (5)	ND (5)	5.3	ND	15.4	5.8
	09/22/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6	ND (5)	ND (5)	ND (5)	ND (5)	6	ND	12	5.8
	09/22/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.7	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.3	ND	11	5.9
	09/22/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11c-SS-2	09/22/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.9	7.3	6.3	8.3	8.6	ND (5)	12	ND (5)	5.3	ND (5)	ND (5)	11	ND	65.7	11
	09/22/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	34	41	40	31	48	51	9.1	69	ND (5)	29	ND (5)	25	66	25	418.1	61
	09/22/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9	18	16	17	21	16	7	18	ND (5.1)	17	ND (5.1)	8.2	16	8.2	155	29
	09/22/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.9	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.9	5.9
AOC11d-1	09/23/08	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	26	44	46	43	61 J	62	12	100	ND (5.2)	38	ND (5.2)	33	93	33	525	68
	09/23/08	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	31	39	46	35	55 J	65	12	120	ND (5.1)	31	ND (5.1)	36	100	36	534	62
	09/23/08	2.5 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/23/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (3.5)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/23/08	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC11e-1	09/23/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	47	67	68	61	85 J	91	21	130	ND (5)	56	ND (5)	56	130	56	756	110
	09/23/08	2.5 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	16	17	18	14	22 J	27	ND (5)	50	ND (5)	13	ND (5)	26	43	26	220	24
	09/23/08	5.5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	6	6.9	5.4	8.1 J	9.1	ND (5.1)	17	ND (5.1)	ND (5.1)	ND (4.6)	8.6	15	8.6	73	10
	09/23/08	9.5 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	45	35	49	32	48	60	12	87	ND (5.1)	30	ND (5)	43	78	43	476	60
AOC11e-2	09/24/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	440	380	400	22	380	530	6.4	1,500	ND (5)	20	5	590	1,200	595	4,878	480
	09/24/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.2	ND (5)	ND (5)	ND (5)	ND (5)	8.2	ND	15.4	5.8
	09/24/08	2 - 3	FD	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	10	ND (5.5)	ND (5.5)	ND (5)	6	11	6	21	6.4
	09/24/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.6	ND (5.1)	ND (5.1)	5.6	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	8.2	ND	29.4	6.2
	09/24/08	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC11e-3	01/08/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	58	ND (51)	ND (51)	ND (51)	ND (51)	36 J	ND (5.1)	ND (51)	ND (5.1)	15 J	30 J	15	124	62
	01/08/16	0 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	---	---	---	---	---	---	---	42 J	ND (5.1)	---	ND (5.1)	15 J	35 J	15	77	ND
	01/10/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	61	100	ND (51)	51	61	ND (51)	79 J	ND (5.1)	ND (51)	ND (5.1)	19 J	75 J	19	427	100
	01/10/16	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (56)	ND (56)	ND (56)	ND (56)	ND (56)	ND (56)	ND (56)	13 J	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	13 J	ND	26	65
	01/10/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	16 J	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	15 J	ND	31	60
	01/10/16	13 - 14	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)

TABLE 3-7c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC11e-4	01/28/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.5	9.5	16	8.5	6.8	11	ND (5.1)	15	ND (5.1)	7.5	ND (5.1)	ND (5.1)	14	ND	95.8	15
	01/28/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.4	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7	ND	22.7	6.5
	01/28/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/28/16	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11e-5	01/19/16	14 - 15	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	01/19/16	19 - 20	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/19/16	29 - 30	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/19/16	39 - 40	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	01/20/16	49 - 50	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	01/21/16	59 - 60	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	01/21/16	69 - 70	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)
AOC11e-6	12/03/15	0 - 1	N	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	ND	ND	5.9 R
AOC11e-SS-1	09/23/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	16	25	34	25	27	36	6.6	53	ND (5)	23	ND (5)	19	49	19	294.6	39
	09/23/08	2.5 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/23/08	5.5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/23/08	9.5 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC11e-SS-2	09/23/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	23	29	24	26	31	6.7	44	ND (5)	21	ND (5)	16	42	16	260.7	36
	09/23/08	2.5 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/23/08	5.5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	13	11	16	7.7	12	20	ND (5.2)	38 J	ND (5.2)	7.3	ND (4.8)	28 J	31 J	28	156	17
	09/23/08	5.5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	ND (4.7)	ND (5.1) J	ND (5.1) J	ND	ND	ND (5.9)
	09/23/08	9.5 - 10	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.7)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC11g-OS1	04/06/11	0 - 0.5	N	ND (10)	ND (100)	ND (10)	ND (10)	ND (10)	120	240	300	170	ND (10)	200	42	300	ND (10)	150	ND (100)	65	290	65	1,812	340
	04/06/11	2.5 - 3	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	20	40	55	26	ND (5)	31	6.4	40	ND (5)	23	ND (9.5)	7.4	37	7.4	278.4	56
	04/06/11	5.5 - 6	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (8.9)	ND (5)	ND (5)	ND	5	6
	04/06/11	8.5 - 9	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.4	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (6.8)	ND (5)	ND (5)	ND	5.4	6.1
PA-07	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	230	300	640	170	250	410	68	540	ND (5.1)	170	ND (5.1)	180	530	180	3,308	470
PA-09	01/27/16	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	12	ND (50)	100	ND (50)	ND (50)	20	ND (50)	23	ND (5)	ND (50)	ND (5)	10	20	10	175	64
PA-10	01/27/16	0 - 1	N	ND (5.1)	7.5 J	11 J	9.2 J	38 J	1,600 J	1,600	2,600	750	930	2,600 J	210	3,700 J	8.9 J	790	8.6 J	1,300 J	3,400 J	1,383	18,180	2,300
	01/26/17	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
PA-11	01/27/16	0 - 1	N	ND (5.2)	10 J	ND (5.2)	ND (5.2)	19 J	350 J	550	1,500	ND (520)	ND (520)	600	ND (520) *	770	ND (5.2)	ND (520)	10 J	250 J	720	289	4,490	1,000
	01/25/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.7	ND (5.2)	ND (5.2) J	5.6	ND (5.2)	8.7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8	ND	31	6.6
	01/25/17	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.6	12	5.6	ND (5.2) J	7	ND (5.2)	10	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.8	ND	51	11
PA-12	01/27/16	0 - 1	N	ND (5.2)	10 J	ND (5.2)	ND (5.2)	ND (5.2)	130 J	130	250	69	86	170	ND (52)	170 J	ND (5.2)	66	ND (5.2)	140 J	150 J	150	1,221	200
	01/25/17	2 - 3	N	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	15	16	34	10	5.6 J	18	ND (5.2)	37	ND (5.2)	9.7	ND (5.2)	23	32	28.2	177.3	25
	01/25/17	5 - 6	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	7.6 J	5.2 R	5.2 R	5.5 J	5.2 R	6.2 J	5.2 R	5.2 R	5.2 R	5.2 R	6.2 J	---	25.5 JR	6.5 JR

TABLE 3-7c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
SD-08	11/11/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	14	28	7.7	8.7	14	ND (5)	19	ND (5)	7.4	ND (5)	6	18	6	127.8	21
	11/11/15	0 - 1	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.4	11	27	9.7	8.7	14	ND (5)	26	ND (5)	9.4	ND (5)	9.7	24	9.7	138.2	18
	11/11/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	ND (51)	ND (51)	ND (51)	ND (51)	21	ND (51)	39	ND (5.1)	ND (51)	ND (5.1)	6.8	39	6.8	111	58
SD-09	11/10/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	16	29	67	14	23	36	ND (5.2)	35	ND (5.2)	14	ND (5.2)	10	35	10	269	42
	11/10/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	5.6	6.3
	11/10/15	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	6	6.5
SD-10	11/10/15	0 - 1	N	ND (5.1)	7.5	ND (5.1)	ND (5.1)	ND (5.1)	8.9	16	41	14	11	17	ND (5.1)	18	ND (5.1)	13	ND (5.1)	ND (5.1)	18	7.5	156.9	25
	11/10/15	2 - 3	N	14	18 J	ND (5.1)	ND (5.1)	ND (5.1)	10	20	59	14 J	17	20	ND (5.1)	26	ND (5.1)	14	ND (5.1)	7.1	25	39.1	205	31
SD-11	12/06/15	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	55	84	150	ND (50)	54	100 J	ND (50)	180	ND (5)	ND (50)	ND (5)	57	170	57	793	130
	12/06/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)
SD-11A	03/07/16	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	16 J	44 J	ND (50)	20 J	71 J	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	21 J	ND (5)	21	151	48
	03/07/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	20 J	ND (52)	90 J	9.1 J	43 J	51 J	ND (52)	72 J	ND (5.2)	ND (52)	ND (5.2)	27 J	ND (5.2)	27	285.1	66
	03/07/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	48 J	ND (52)	25 J	ND (5.2)	ND (52)	49 J	ND (5.2)	ND (52)	ND (5.2)	20 J	ND (5.2)	20	122	60
SD-12	11/10/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	12	ND (50)	ND (50)	ND (50)	ND (50)	20	ND (50)	30	ND (5)	ND (50)	ND (5)	20	25	20	87	56
	11/10/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SD-13	11/10/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	39	74	160	120	51	65	ND (51)	89	ND (5.1)	95	ND (5.1)	11	88	11	781	130
	11/10/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	5.7	6.4
SD-20	11/11/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	42 J	51	110	ND (51)	ND (51)	58 J	ND (51)	88	ND (5.1)	ND (51)	ND (5.1)	27	96	27	445	95
	11/11/15	0 - 1	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	21 J	ND (50)	67	ND (50)	ND (50)	32 J	ND (50)	54	ND (5)	ND (50)	ND (5)	7.7	64	7.7	238	62
	11/11/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
SD-23	03/09/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	150 J	130 J	260	32 J	110 J	150 J	ND (5.3)	220 J	ND (5.3)	28 J	ND (5.3)	30 J	190 J	30	1,270	180
	03/09/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	10	ND (5.4)	ND (5.4)	7.6	ND (5.4)	10	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9.7	ND	42.7	9.7
SD-27	02/15/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SD-OS37	11/30/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	6.1	18	370	600 J	1,000 J	120 J	410 J	690	ND (5.1)	1,200	ND (5.1)	140 J	ND (5.1)	360	1,100	384.1	5,630	760
	11/30/16	3 - 3.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.2	14	27	10	7.8	18	ND (5.1)	24	ND (5.1)	9.5	ND (5.1)	6.8	24	6.8	142.5	21
	11/30/16	5 - 5.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	17	28	14	8.9	21	ND (5.1)	32	ND (5.1)	12	ND (5.1)	9.2	32	9.2	178.9	25

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-7d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Interim Screening Level [1]:	**24,000,000**
			Residential Regional Screening Levels [2]:	**78,000,000**
			Residential DTSC-SL [3]:	**24,000**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Methyl acetate**
Category 1				
AOC11a-1	09/21/08	2 - 3	N	ND (8.6)
AOC11a-2	09/21/08	2 - 3	N	ND (8.2)
AOC11a-3	09/20/08	2 - 3	N	ND (9.3)
	09/20/08	2 - 3	FD	ND (7.4)
AOC11b-1	09/17/08	2 - 3	N	ND (5.6)
AOC11c-2	09/22/08	2 - 3	N	ND (16) J
AOC11d-1	09/23/08	2.5 - 3	N	ND (4.4)
AOC11e-2	09/24/08	2 - 3	N	17
PA-11	01/25/17	2 - 3	N	ND (6)
PA-12	01/25/17	2 - 3	N	ND (6.1)

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-7e

Sample Results: Total Petroleum Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC11-4-OS5	06/11/14	0	N	ND (10)	26
AOC11-4-OS3	06/11/14	0	N	ND (10)	ND (10) J
AOC11-4-OS6	06/11/14	0	N	ND (10)	15
AOC11-4-OS4	06/11/14	0	N	ND (10)	ND (10)
AOC11-4-OS1	06/11/14	0	N	ND (10)	ND (10)
AOC11-4-OS3	06/11/14	2 - 3	N	ND (10)	18
AOC11-4-OS1	06/11/14	2 - 3	N	ND (11)	ND (11)
AOC11-4-OS5	06/11/14	2 - 3	N	14	65
AOC11-4-OS6	06/11/14	2 - 3	N	ND (11)	ND (11)
AOC11-4-OS4	06/11/14	2 - 3	N	ND (10)	ND (10)
AOC11-4-OS3	06/11/14	2 - 3	FD	ND (10)	15
AOC11-4-OS4	06/11/14	5 - 6	N	ND (10)	14
AOC11-4-OS5	06/11/14	5 - 6	FD	13	57
AOC11-1	01/05/16	0 - 1	N	ND (10)	ND (10)
	01/05/16	0 - 1	FD	ND (10)	29
	01/05/16	2 - 3	N	ND (10)	ND (10)
	01/05/16	5 - 6	N	ND (12)	42
	01/05/16	9 - 10	N	ND (14)	ND (14)
AOC11-2	01/05/16	0 - 1	N	ND (10)	13
	01/05/16	2 - 3	N	ND (10)	ND (10)
	01/05/16	5 - 6	N	ND (10)	ND (10)
	01/05/16	9 - 10	N	ND (10)	ND (10)
	01/05/16	9 - 10	FD	ND (10)	ND (10)
AOC11-3	01/05/16	0 - 1	N	ND (10)	19
	01/05/16	2 - 3	N	ND (10)	ND (10)
	01/05/16	5 - 6	N	ND (10)	13
	01/05/16	9 - 10	N	ND (11)	ND (11)
	01/05/16	9 - 10	FD	ND (11)	ND (11)
AOC11-4	01/05/16	0 - 1	N	ND (10)	ND (10)
	01/05/16	2 - 3	N	ND (11)	26
AOC11-5	02/03/16	0 - 0.5	N	ND (12)	72
	02/03/16	2 - 3	N	ND (11)	ND (11)
	02/03/16	5 - 6	N	ND (10)	15
	02/03/16	9 - 10	N	ND (10)	ND (10)
AOC11-6	01/06/16	0 - 1	N	ND (11)	26
	01/06/16	2 - 3	N	ND (10)	ND (10)
	01/06/16	5 - 6	N	ND (10)	ND (10)
	01/06/16	9 - 10	N	ND (10)	ND (10)

TABLE 3-7e

Sample Results: Total Petroleum Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	230	11,000
			Residential Regional Screening Levels [2] :	NE	NE
			Residential DTSC-SL [3] :	NE	NE
			RWQCB Environmental Screening Levels [4] :	230	11,000
			Ecological Comparison Values [5] :	NE	NE
			Background [6] :	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC11-7	01/06/16	0 - 1	N	ND (11)	ND (11)
	01/06/16	2 - 3	N	41	250
	01/06/16	5 - 6	N	ND (10)	23
AOC11-8	12/06/15	0 - 1	N	ND (10)	10
	12/06/15	2 - 3	N	ND (10)	ND (10)
AOC11-9	12/06/15	0 - 1	N	ND (10)	ND (10)
	12/06/15	2 - 3	N	ND (10)	ND (10)
AOC11a-1	09/21/08	0 - 0.5	N	ND (10)	45.7 J
	09/21/08	2 - 3	N	ND (10)	10.1 J
	09/21/08	5 - 6	N	ND (10)	ND (10)
AOC11a-2	09/21/08	0 - 0.5	N	ND (10)	ND (10)
	09/21/08	2 - 3	N	ND (10)	ND (10)
	09/21/08	5 - 6	N	ND (10)	ND (10)
AOC11a-3	09/20/08	0 - 0.5	N	ND (10)	ND (10)
	09/20/08	2 - 3	N	ND (10)	ND (10)
	09/20/08	2 - 3	FD	ND (10)	ND (10)
	09/20/08	5 - 6	N	ND (10) J	35.6 J
AOC11a-4	09/20/08	0 - 0.5	N	10.3	14 J
	09/20/08	2 - 3	N	ND (10)	47.5 J
	09/20/08	5 - 6	N	ND (10)	11.9 J
AOC11a-5	09/21/08	0 - 0.5	N	ND (10)	11.2 J
	09/21/08	2 - 3	N	ND (10)	37.4 J
	09/21/08	5 - 6	N	ND (10)	11.3 J
	09/21/08	5 - 6	FD	ND (10)	ND (10)
AOC11b-1	09/17/08	0 - 0.5	N	ND (101)	ND (101)
	09/17/08	0 - 0.5	FD	ND (101)	ND (101)
	09/17/08	2 - 3	N	ND (10)	ND (10)
	09/17/08	5 - 6	N	ND (10)	16
AOC11b-2	09/17/08	0 - 0.5	N	ND (101)	ND (101)
	09/17/08	2 - 3	N	ND (10)	ND (10)
	09/17/08	5 - 6	N	ND (10)	ND (10)
AOC11c-1	09/21/08	0 - 0.5	N	ND (10)	ND (10)
	09/22/08	2 - 3	N	ND (10) J	53.5
	09/22/08	2 - 3	FD	78 J	71.2
	09/22/08	5 - 6	N	ND (10)	76.5
AOC11c-2	09/21/08	0 - 0.5	N	ND (10)	ND (10)
	09/22/08	2 - 3	N	10	79.2
	09/22/08	5 - 6	N	ND (10)	43.1

TABLE 3-7e
Sample Results: Total Petroleum Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1]:	**230**	**11,000**
			Residential Regional Screening Levels [2]:	**NE**	**NE**
			Residential DTSC-SL [3]:	**NE**	**NE**
			RWQCB Environmental Screening Levels [4]:	**230**	**11,000**
			Ecological Comparison Values [5]:	**NE**	**NE**
			Background [6]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC11d-1	09/23/08	0 - 0.5	N	ND (10)	ND (10)
	09/23/08	0 - 0.5	FD	ND (10)	15.4
	09/23/08	2.5 - 3	N	ND (10)	ND (10)
	09/23/08	5 - 6	N	ND (10)	ND (10)
	09/23/08	9 - 10	N	ND (10) J	ND (10) J
AOC11e-1	09/23/08	0 - 0.5	N	ND (10)	11.7
	09/23/08	2.5 - 3	N	ND (10)	42.2 J
	09/23/08	5.5 - 6	N	ND (10)	23.6
	09/23/08	9.5 - 10	N	ND (10) J	17.7 J
AOC11e-2	09/24/08	0 - 0.5	N	13.8	166
	09/24/08	2 - 3	N	ND (10)	471
	09/24/08	2 - 3	FD	10.1	544
	09/24/08	5 - 6	N	15.6	105
	09/24/08	9 - 10	N	ND (10) J	ND (10) J
AOC11e-SS-1	09/23/08	0 - 0.5	N	ND (10) J	ND (10) J
	09/23/08	2.5 - 3	N	ND (10) J	ND (10) J
	09/23/08	5.5 - 6	N	ND (10) J	10.5 J
	09/23/08	9.5 - 10	N	ND (10) J	ND (10) J
AOC11e-SS-2	09/23/08	0 - 0.5	N	ND (10) J	ND (10) J
	09/23/08	2.5 - 3	N	ND (10) J	ND (10) J
	09/23/08	5.5 - 6	N	ND (10) J	ND (10) J
	09/23/08	5.5 - 6	FD	ND (10) J	ND (10) J
	09/23/08	9.5 - 10	N	10 J	ND (10) J
AOC11g-OS1	04/06/11	0 - 0.5	N	75	340
	04/06/11	2.5 - 3	N	20	65
	04/06/11	5.5 - 6	N	15	31
	04/06/11	8.5 - 9	N	ND (10)	ND (10)
PA-07	11/09/15	0 - 1	N	63	360 J
PA-09	01/27/16	0 - 1	N	12	220
PA-10	01/27/16	0 - 1	N	53	300
PA-11	01/27/16	0 - 1	N	28	240
PA-12	01/27/16	0 - 1	N	15	120
SD-08	11/11/15	0 - 1	N	ND (10)	ND (10)
	11/11/15	0 - 1	FD	ND (10)	ND (10)
	11/11/15	2 - 3	N	ND (10)	18
SD-09	11/10/15	0 - 1	N	13	19
	11/10/15	2 - 3	N	30	72
	11/10/15	5 - 6	N	ND (11)	13

TABLE 3-7e
Sample Results: Total Petroleum Hydrocarbons
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1]:	**230**	**11,000**
			Residential Regional Screening Levels [2]:	**NE**	**NE**
			Residential DTSC-SL [3]:	**NE**	**NE**
			RWQCB Environmental Screening Levels [4]:	**230**	**11,000**
			Ecological Comparison Values [5]:	**NE**	**NE**
			Background [6]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SD-10	11/10/15	0 - 1	N	ND (10)	26
	11/10/15	2 - 3	N	26	25
SD-11	12/06/15	0 - 0.5	N	54	180
	12/06/15	2 - 3	N	590	1,200
SD-11A	03/07/16	0 - 1	N	840 J	1,400
	03/07/16	2 - 3	N	940	1,500
	03/07/16	5 - 6	N	240	440
SD-12	11/10/15	0 - 1	N	ND (10)	29
	11/10/15	2 - 3	N	26	56
SD-13	11/10/15	0 - 1	N	ND (10)	11
	11/10/15	2 - 3	N	ND (11)	ND (11)
SD-20	11/11/15	0 - 1	N	ND (10)	39 J
	11/11/15	0 - 1	FD	23	290 J
	11/11/15	2 - 3	N	ND (10)	ND (10)
SD-23	03/09/16	0 - 1	N	47	140
	03/09/16	2 - 3	N	ND (11)	ND (11)
SD-27	02/15/17	2 - 3	N	ND (10)	ND (10)
SD-OS37	11/30/16	0 - 0.5	N	21	130
	11/30/16	3 - 3.5	N	19	46
	11/30/16	5 - 5.5	N	ND (10)	12

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-7f

Sample Results: General Chemistry Parameters
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
Interim Screening Level [1]:				NE
Residential Regional Screening Levels [2]:				NE
Residential DTSC-SL [3]:				NE
Ecological Comparison Values [4]:				NE
Background [5]:				NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC11-4-OS4	06/11/14	0	N	8.6
AOC11-4-OS6	06/11/14	0	N	8.4
AOC11-4-OS5	06/11/14	0	N	8.6
AOC11-4-OS3	06/11/14	0	N	8.7
AOC11-4-OS1	06/11/14	0	N	9.1
AOC11-4-OS6	06/11/14	2 - 3	N	9.7
AOC11-4-OS5	06/11/14	2 - 3	N	9.7
AOC11-4-OS4	06/11/14	2 - 3	N	8.7
AOC11-4-OS3	06/11/14	2 - 3	N	9.4
AOC11-4-OS1	06/11/14	2 - 3	N	9
AOC11-4-OS3	06/11/14	2 - 3	FD	9.3
AOC11-4-OS4	06/11/14	5 - 6	N	9.6
AOC11-4-OS5	06/11/14	5 - 6	FD	9.8
AOC11-1	01/05/16	0 - 1	N	8.9
	01/05/16	0 - 1	FD	8.9
	01/05/16	2 - 3	N	9.5
	01/05/16	5 - 6	N	9
	01/05/16	9 - 10	N	8.9
AOC11-2	01/05/16	0 - 1	N	7.8
	01/05/16	2 - 3	N	8
	01/05/16	5 - 6	N	8.5
	01/05/16	9 - 10	N	8.5
	01/05/16	9 - 10	FD	8.5
AOC11-3	01/05/16	0 - 1	N	8
	01/05/16	2 - 3	N	8.4
	01/05/16	5 - 6	N	8.2
	01/05/16	9 - 10	N	7.9
	01/05/16	9 - 10	FD	8.7
AOC11-4	01/05/16	0 - 1	N	9.5
	01/05/16	2 - 3	N	11
AOC11-5	02/03/16	0 - 0.5	N	8.6
	02/03/16	2 - 3	N	9.2
	02/03/16	5 - 6	N	9.5
	02/03/16	9 - 10	N	9.7

TABLE 3-7f

Sample Results: General Chemistry Parameters
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	NE
			Residential Regional Screening Levels [2]:	NE
			Residential DTSC-SL [3]:	NE
			Ecological Comparison Values [4]:	NE
			Background [5]:	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
AOC11-6	01/06/16	0 - 1	N	9.4
	01/06/16	2 - 3	N	9
	01/06/16	5 - 6	N	8.6
	01/06/16	9 - 10	N	9.2
AOC11-7	01/06/16	0 - 1	N	8.2
	01/06/16	2 - 3	N	8.2
	01/06/16	5 - 6	N	8.2
AOC11-8	12/06/15	0 - 1	N	9.3
	12/06/15	2 - 3	N	8.6
AOC11-9	12/06/15	0 - 1	N	9.3
	12/06/15	2 - 3	N	9.3
AOC11a-1	09/21/08	0 - 0.5	N	8.26
	09/21/08	2 - 3	N	8.76
	09/21/08	5 - 6	N	9.8
AOC11a-2	09/21/08	0 - 0.5	N	8.19
	09/21/08	2 - 3	N	8.89
	09/21/08	5 - 6	N	8.97
AOC11a-3	09/20/08	0 - 0.5	N	8.25
	09/20/08	2 - 3	N	8.6
	09/20/08	2 - 3	FD	8.96
	09/20/08	5 - 6	N	8.99
AOC11a-4	09/20/08	0 - 0.5	N	7.99
	09/20/08	2 - 3	N	9.09
	09/20/08	5 - 6	N	9.34
AOC11a-5	09/21/08	0 - 0.5	N	8.37
	09/21/08	2 - 3	N	9.29
	09/21/08	5 - 6	N	9.61
	09/21/08	5 - 6	FD	9.51
AOC11b-1	09/17/08	0 - 0.5	N	7.64
	09/17/08	0 - 0.5	FD	7.48
	09/17/08	2 - 3	N	8.36
	09/17/08	5 - 6	N	8.39
AOC11b-2	09/17/08	0 - 0.5	N	7.88
	09/17/08	2 - 3	N	8.24
	09/17/08	5 - 6	N	8.13

TABLE 3-7f

Sample Results: General Chemistry Parameters
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	**NE**
			Residential Regional Screening Levels [2]:	**NE**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
AOC11c-1	09/21/08	0 - 0.5	N	8.74
	09/22/08	2 - 3	N	7.73
	09/22/08	2 - 3	FD	8.03
	09/22/08	5 - 6	N	7.9
AOC11c-2	09/21/08	0 - 0.5	N	8.56
	09/22/08	2 - 3	N	7.92
	09/22/08	5 - 6	N	7.99
AOC11d-1	09/23/08	0 - 0.5	N	8.06
	09/23/08	0 - 0.5	FD	7.63
	09/23/08	2.5 - 3	N	8.7
	09/23/08	5 - 6	N	8.91
AOC11e-1	09/23/08	0 - 0.5	N	7.94
	09/23/08	2.5 - 3	N	8.3
	09/23/08	5.5 - 6	N	7.87
AOC11e-2	09/24/08	0 - 0.5	N	8.05
	09/24/08	2 - 3	N	7.72
	09/24/08	2 - 3	FD	7.58
	09/24/08	5 - 6	N	7.8
AOC11e-6	12/03/15	0 - 1	N	7.7
AOC11g-OS1	04/06/11	0 - 0.5	N	8
	04/06/11	2.5 - 3	N	7.8
	04/06/11	5.5 - 6	N	7.8
	04/06/11	8.5 - 9	N	7.8

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
µS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-7g
Sample Results: Pesticides
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC11a-1	09/21/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC11a-2	09/21/08	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC11a-3	09/20/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC11b-1	09/17/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	09/17/08	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC11c-2	09/21/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC11C-3	02/03/16	14 - 15	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/03/16	19 - 20	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/03/16	29 - 30	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC11c-4	01/28/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/28/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/28/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/28/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/28/16	9 - 10	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/02/16	14 - 15	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/02/16	19 - 20	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC11d-1	09/23/08	0 - 0.5	N	ND (2.1) *	6.1	ND (2.1) *	ND (1)	ND (1)	12 J	ND (1)	ND (1)	6.7	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	13 J	ND (1)	ND (1)	ND (5.2)	ND (52) J
	09/23/08	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1) J	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1) J	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC11e-2	09/24/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC11e-3	01/08/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/08/16	0 - 1	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/10/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/10/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J
	01/10/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/10/16	13 - 14	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC11e-4	01/28/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/28/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/28/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	01/28/16	14 - 15	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J

TABLE 3-7g
Sample Results: Pesticides
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PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
AOC11e-5	01/19/16	14 - 15	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
	01/19/16	19 - 20	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	01/19/16	29 - 30	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	01/19/16	39 - 40	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
	01/20/16	49 - 50	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	01/21/16	59 - 60	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	01/21/16	69 - 70	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
PA-11	01/25/17	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
PA-12	01/25/17	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-7h

Sample Results: Polychlorinated Biphenyls
AOC 11 – Topographic Low Areas
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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC11-2	01/05/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	9 - 10	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC11-3	01/05/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/05/16	9 - 10	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC11-8	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	12/06/15	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11-9	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	12/06/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11a-1	09/21/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11a-2	09/21/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11a-3	09/20/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11b-1	09/17/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	09/17/08	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11c-2	09/21/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	29	ND (17)	ND (17)	ND (17)	37.5
	09/22/08	2 - 3	N	ND (18) J	ND (35) J	ND (18) J	ND (18) J	ND (18) J	190 J	ND (18) J	ND (18) J	ND (18) J	199
AOC11C-3	02/03/16	14 - 15	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/03/16	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/03/16	29 - 30	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)

TABLE 3-7h
Sample Results: Polychlorinated Biphenyls
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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC11c-4	01/28/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	9 - 10	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/02/16	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	02/02/16	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC11d-1	09/23/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	76	ND (17)	ND (17)	ND (17)	84.5
	09/23/08	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	41	ND (17)	ND (17)	ND (17)	49.5
	09/23/08	2.5 - 3	N	ND (17) J	ND (34) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17)
AOC11e-2	09/24/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	190	240	ND (17)	ND (17)	430
	09/24/08	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	09/24/08	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	26	ND (17)	ND (17)	ND (17)	34.5
	09/24/08	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	18	ND (17)	ND (17)	ND (17)	26.5
	09/24/08	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11e-3	01/08/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	28	ND (17)	---	---	36.5
	01/08/16	0 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	---	---	38.5
	01/10/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	38	ND (17)	---	---	46.5
	01/10/16	5 - 6	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	01/10/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/10/16	13 - 14	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
AOC11e-4	01/28/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/28/16	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)

TABLE 3-7h
Sample Results: Polychlorinated Biphenyls
AOC 11 – Topographic Low Areas
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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC11e-5	01/19/16	14 - 15	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	01/19/16	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/19/16	29 - 30	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/19/16	39 - 40	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	01/20/16	49 - 50	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	01/21/16	59 - 60	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
	01/21/16	69 - 70	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (18)
AOC11e-SS-1	09/23/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	30	ND (17)	ND (17)	ND (17)	38.5
	09/23/08	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	09/23/08	5.5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	09/23/08	9.5 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
AOC11e-SS-2	09/23/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	40	ND (17)	ND (17)	ND (17)	48.5
	09/23/08	2.5 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)
	09/23/08	5.5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	ND (17)	ND (17)	38.5
	09/23/08	5.5 - 6	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	27.5
	09/23/08	9.5 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)
AOC11g-OS1	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	140	ND (17)	---	---	148.5
	04/06/11	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	190	ND (17)	---	---	198.5
	04/06/11	5.5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
	04/06/11	8.5 - 9	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (17)
PA-07	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	100	ND (17)	---	---	125.5
PA-09	01/27/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17) J	ND (17)	51	ND (17)	---	---	76.5
PA-10	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	590	ND (17)	---	---	615.5
	01/26/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-7h
Sample Results: Polychlorinated Biphenyls
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1]:				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2]:				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
PA-11	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	530	ND (17)	---	---	555.5
	01/25/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/25/17	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	---	---	44.5
PA-12	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	470 J	ND (17)	---	---	495.5
	01/25/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	27	ND (17)	---	---	52.5
SD-08	11/11/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	42	ND (17)	ND (17)	ND (17)	67.5
	11/11/15	0 - 1	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	38	ND (17)	ND (17)	ND (17)	63.5
	11/11/15	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
SD-09	11/10/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-10	11/10/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/10/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-11	12/06/15	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	430	180 J	ND (17)	ND (17)	627
	12/06/15	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
SD-11A	03/07/16	0 - 1	N	70	ND (33)	ND (17)	ND (17)	ND (17)	250	1,000	---	---	1,329
	03/07/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	240	360	---	---	617
	03/07/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	110	110	---	---	237
SD-12	11/10/15	0 - 1	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	---	---	ND (32)
	11/10/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-13	11/10/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	11/10/15	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
SD-20	11/11/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	11/11/15	0 - 1	FD	ND (17) J	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (34)
	11/11/15	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

TABLE 3-7h

Sample Results: Polychlorinated Biphenyls
AOC 11 – Topographic Low Areas
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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
SD-23	03/09/16	0 - 1	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	250	ND (18)	---	---	277
	03/09/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
SD-27	02/15/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS37	11/30/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	1,600	310	---	---	1,927
	11/30/16	3 - 3.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	110	38	---	---	165
	11/30/16	5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	26	ND (17)	---	---	51.5

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

TABLE 3-7h

Sample Results: Polychlorinated Biphenyls

AOC 11 – Topographic Low Areas

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PG&E Topock Compressor Station, Needles, California

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-7i
Sample Results: Dioxins and Furans
AOC 11 – Topographic Low Areas
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PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
Category 1																							
AOC11-4-OS5	06/11/14	0	N	490	28	ND (2.3)	2 J	3 J	11 J	1.1 J	3.4 J	ND (0.44)	1 J	ND (0.43)	ND (46)	ND (1.3)	ND (0.15)	ND (0.48)	6,200	82	6.7	13	13
AOC11-4-OS6	06/11/14	0	N	230	22	2 J	2.2 J	2 J	6.9 J	1 J	ND (3.3)	ND (0.51)	ND (1.2)	ND (0.47)	ND (28)	1.3 J	ND (0.12)	ND (0.65)	2,200	65	5.1	7.1	7.1
AOC11-4-OS4	06/11/14	0	N	14	1.2 J	ND (0.12)	ND (0.28)	ND (0.097)	0.6 J	ND (0.093)	ND (0.29)	ND (0.12)	ND (0.11)	ND (0.11)	ND (1.8)	ND (0.12)	ND (0.095)	ND (0.1)	120	ND (2.4)	0.39	0.51	0.51
AOC11-4-OS3	06/11/14	0	N	100	8.2 J	0.89 J	ND (0.67)	1 J	2.6 J	0.5 J	1.3 J	ND (0.23)	ND (0.49)	ND (0.26)	ND (18)	ND (0.45)	ND (0.15)	ND (0.19)	1,000	25	2.2	3.3	3.3
AOC11-4-OS1	06/11/14	0	N	12 J	1.1 J	ND (0.13)	ND (0.42)	ND (0.16)	ND (0.22)	ND (0.15)	ND (0.21)	ND (0.2)	ND (0.12)	ND (0.11)	ND (1.4)	ND (0.12)	ND (0.11)	ND (0.098)	100	2.4 J	0.38	0.44	0.44
AOC11-4-OS6	06/11/14	2 - 3	N	76	4.1 J	ND (0.18)	ND (0.31)	ND (0.39)	1.7 J	ND (0.19)	ND (0.58)	ND (0.26)	ND (0.15)	ND (0.16)	ND (7.5)	ND (0.18)	ND (0.11)	ND (0.11)	980	11 J	0.97	1.9	1.9
AOC11-4-OS5	06/11/14	2 - 3	N	560 J	ND (0.27)	4 J	1.5 J	4.3 J	15	1.4 J	3 J	1.6 J	ND (0.55)	ND (0.24)	ND (100)	3.7 J	ND (0.1)	0.83 J	7,000	130	12	17	17
AOC11-4-OS4	06/11/14	2 - 3	N	7.8 J	ND (0.78)	ND (0.15)	ND (0.2)	ND (0.12)	ND (0.28)	ND (0.12)	ND (0.18)	ND (0.16)	ND (0.15)	ND (0.12)	ND (1.3)	ND (0.13)	ND (0.11)	ND (0.11)	70	ND (2)	0.38	0.38	0.38
AOC11-4-OS3	06/11/14	2 - 3	N	390	32	ND (2.7)	2.9 J	2.7 J	9.4 J	1.5 J	4.7 J	ND (0.76)	ND (1.3)	ND (0.87)	ND (48)	1.2 J	ND (0.088)	ND (0.49)	4,900	140	7	11	11
AOC11-4-OS1	06/11/14	2 - 3	N	8.1 J	0.81 J	ND (0.18)	ND (0.22)	ND (0.12)	ND (0.22)	ND (0.12)	ND (0.21)	ND (0.16)	ND (0.13)	ND (0.14)	1.3 J	ND (0.16)	ND (0.24)	ND (0.071)	70	1.6 J	0.5	0.51	0.51
AOC11-4-OS3	06/11/14	2 - 3	FD	360	27	2.4 J	ND (2.6)	2.7 J	9.7 J	1.5 J	4.7 J	0.88 J	ND (1.3)	0.87 J	ND (49)	1 J	ND (0.15)	ND (0.85)	3,500	77	6.8	11	11
AOC11-4-OS4	06/11/14	5 - 6	N	65	4.9 J	ND (0.53)	0.75 J	ND (0.42)	2.1 J	ND (0.41)	ND (0.99)	ND (0.22)	ND (0.38)	ND (0.19)	ND (9.7)	ND (0.21)	ND (0.13)	ND (0.18)	600	16 J	1.3	2.1	2.1
AOC11-4-OS5	06/11/14	5 - 6	FD	350 J	ND (0.35)	2.9 J	1.4 J	ND (2.9)	11 J	ND (0.96)	2.1 J	ND (1.2)	ND (0.29)	ND (0.47)	ND (71)	ND (2.6)	ND (0.14)	ND (0.72)	4,700	100	7	11	11
AOC11-1	01/05/16	0 - 1	N	ND (6.2) J	ND (0.83) J	ND (0.21) J	ND (0.099) J	ND (0.17) J	ND (0.099) J	ND (0.16) J	0.16 J	ND (0.2) J	ND (0.068) J	ND (0.064) J	ND (1.1) J	ND (0.066) J	ND (0.055) J	ND (0.051) J	70 J	ND (0.99) J	0.24	0.24	0.24
	01/05/16	2 - 3	N	ND (0.93) J	ND (0.11) J	ND (0.079) J	ND (0.033) J	ND (0.03) J	ND (0.033) J	ND (0.028) J	ND (0.057) J	ND (0.023) J	ND (0.033) J	ND (0.032) J	ND (0.07) J	ND (0.033) J	ND (0.036) J	ND (0.026) J	ND (8.7)	ND (0.12) J	ND (0.079)	ND (0.062)	ND (0.062)
AOC11-2	01/05/16	0 - 1	N	13	ND (1.2)	ND (0.15)	ND (0.12)	ND (0.11)	ND (0.32)	ND (0.1)	ND (0.12)	ND (0.13)	ND (0.059)	ND (0.15)	ND (1.6)	ND (0.16)	ND (0.052)	ND (0.08)	120	5.3 J	0.32	0.39	0.39
	01/05/16	2 - 3	N	ND (0.88)	ND (0.056)	ND (0.071)	0.32 J	ND (0.042)	0.3 J	ND (0.03)	ND (0.039)	ND (0.049)	ND (0.05)	ND (0.088)	ND (0.034)	ND (0.095)	ND (0.054)	ND (0.16)	ND (0.095)	ND (0.13)	0.21	0.15	0.15
	01/05/16	5 - 6	N	ND (0.65)	ND (0.06)	ND (0.076)	ND (0.054)	ND (0.056)	ND (0.059)	ND (0.052)	ND (0.056)	ND (0.065)	ND (0.027)	ND (0.049)	ND (0.18)	ND (0.053)	ND (0.065)	ND (0.063)	6.9 J	ND (0.54)	0.13	0.09	0.09
	01/05/16	9 - 10	N	ND (0.23)	ND (0.028)	ND (0.041)	ND (0.025)	ND (0.044)	ND (0.024)	ND (0.041)	ND (0.023)	ND (0.051)	ND (0.061)	ND (0.066)	ND (0.14)	ND (0.071)	ND (0.035)	ND (0.098)	ND (0.77)	ND (0.04)	ND (0.15)	ND (0.084)	ND (0.084)
	01/05/16	9 - 10	FD	ND (0.044)	ND (0.03)	ND (0.12)	ND (0.041)	ND (0.028)	ND (0.041)	ND (0.026)	ND (0.039)	ND (0.033)	ND (0.1)	ND (0.097)	ND (0.061)	ND (0.04)	ND (0.046)	ND (0.12)	ND (0.43)	ND (0.05)	ND (0.17)	ND (0.1)	ND (0.1)
AOC11-3	01/05/16	0 - 1	N	100	9.3 J	ND (0.68)	ND (0.8)	ND (1.1)	3.9 J	ND (1)	1.7 J	ND (1.3)	ND (0.36)	ND (0.12)	ND (14)	ND (0.13)	ND (0.096)	ND (0.25)	990	33	1.8	3.1	3.1
	01/05/16	2 - 3	N	4 J	0.47 J	ND (0.11)	ND (0.1)	ND (0.13)	ND (0.1)	ND (0.12)	ND (0.097)	ND (0.15)	ND (0.044)	ND (0.04)	ND (1.1)	ND (0.043)	ND (0.028)	ND (0.17)	36	ND (0.97)	0.24	0.2	0.2
	01/05/16	5 - 6	N	58	5.9 J	ND (0.23)	ND (0.62)	ND (0.23)	ND (2.1)	ND (0.16)	ND (1)	ND (0.16)	ND (0.14)	ND (0.11)	ND (9.2)	ND (0.26)	ND (0.051)	ND (0.19)	520	20 J	1.1	1.6	1.6
	01/05/16	9 - 10	N	6.6 J	1.3 J	ND (0.18)	ND (0.066)	ND (0.091)	ND (0.065)	ND (0.33)	ND (0.062)	ND (0.11)	ND (0.043)	ND (0.15)	ND (3)	ND (0.16)	ND (0.042)	ND (0.12)	71	5.6 J	0.4	0.36	0.36
	01/05/16	9 - 10	FD	5.8 J	1.3 J	ND (0.32)	0.083 J	ND (0.14)	ND (0.35)	ND (0.13)	ND (0.12)	ND (0.16)	ND (0.066)	ND (0.13)	ND (0.14)	ND (0.14)	ND (0.043)	ND (0.045)	51	3.6 J	0.22	0.23	0.23
AOC11-4	01/05/16	0 - 1	N	43	3.7 J	ND (0.25)	ND (0.35)	ND (0.11)	ND (1.1)	ND (0.27)	0.89 J	ND (0.34)	ND (0.15)	ND (0.14)	ND (5.2)	ND (0.15)	ND (0.038)	ND (0.28)	390	8.8 J	0.84	1.2	1.2
	01/05/16	2 - 3	N	120	5.1 J	ND (0.59)	ND (0.76)	ND (0.3)	2.4 J	ND (0.28)	ND (1.2)	ND (0.35)	ND (0.2)	ND (0.14)	ND (7.9)	ND (0.15)	ND (0.053)	ND (0.16)	1,200	16 J	1.1	2.6	2.6
AOC11-5	02/03/16	0 - 0.5	N	920	92	7.5 J	5.9 J	7.3 J	25	3.2 J	11 J	ND (2.2)	3.1 J	ND (0.95)	ND (140)	ND (3.1)	1 J	ND (2.3)	9,700	290	20	30	30
	02/03/16	2 - 3	N	19	2.4 J	ND (0.37)	0.26 J	ND (0.19)	0.73 J	ND (0.22)	ND (0.36)	ND (0.26)	ND (0.093)	ND (0.13)	ND (3.4)	ND (0.081)	ND (0.16)	ND (0.24)	180	ND (5.3)	0.6	0.74	0.74
	02/03/16	5 - 6	N	3.5 J	0.57 J	ND (0.23)	ND (0.13)	ND (0.089)	ND (0.13)	ND (0.087)	ND (0.13)	ND (0.1)	ND (0.085)	ND (0.081)	ND (1.2)	ND (0.086)	ND (0.037)	ND (0.24)	28	ND (0.97)	0.33	0.23	0.23
	02/03/16	9 - 10	N	ND (0.83)	ND (0.22)	0.27 J	ND (0.12)	ND (0.084)	ND (0.1)	ND (0.093)	ND (0.049)	ND (0.24)	ND (0.051)	ND (0.059)	ND (0.3)	ND (0.062)	ND (3.7)	ND (0.24)	ND (3.5)	ND (0.049)	2.1	2	2

TABLE 3-7i

Sample Results: Dioxins and Furans
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC11-6	01/06/16	0 - 1	N	19 J	2.3 J	ND (0.3) J	ND (0.22) J	ND (0.45) J	ND (0.66) J	ND (0.43) J	ND (0.22) J	ND (0.51) J	ND (0.24) J	ND (0.14) J	ND (2.6) J	ND (0.37) J	ND (0.074) J	ND (0.11) J	180 J	4 J	0.69	0.74	0.74
	01/06/16	2 - 3	N	8.5 J	1.5 J	ND (0.23) J	ND (0.2) J	ND (0.31) J	ND (0.2) J	ND (0.29) J	ND (0.19) J	ND (0.35) J	ND (0.25) J	ND (0.23) J	ND (1.2) J	ND (0.24) J	ND (0.055) J	ND (0.067) J	95 J	ND (1.6) J	0.47	0.46	0.46
AOC11-7	01/06/16	0 - 1	N	27 J	3.7 J	1.4 J	ND (1.1) J	ND (1.2) J	1.9 J	ND (1.1) J	ND (1.7) J	1.4 J	1.1 J	1 J	ND (5.1) J	ND (1.7) J	0.63 J	ND (0.23) J	230 J	7 J	3.5	3.3	3.3
	01/06/16	2 - 3	N	5.8 J	2.3 J	ND (0.4) J	ND (0.41) J	ND (0.25) J	ND (0.41) J	ND (0.24) J	ND (0.4) J	ND (0.29) J	ND (0.35) J	ND (0.45) J	ND (2.7) J	ND (1.3) J	ND (0.2) J	ND (0.49) J	79 J	4.8 J	1.4	0.84	0.84
AOC11-8	12/06/15	0 - 1	N	26 J	ND (2.2) J	ND (0.56) J	ND (0.22) J	ND (0.45) J	ND (0.71) J	ND (0.43) J	ND (0.42) J	ND (0.52) J	ND (0.18) J	ND (0.1) J	ND (5.1) J	ND (0.11) J	ND (0.046) J	ND (0.072) J	340 J	16 J	0.64	0.91	0.91
	12/06/15	2 - 3	N	12 J	2.2 J	ND (0.1) J	ND (0.23) J	ND (0.16) J	ND (0.23) J	0.4 J	ND (0.28) J	ND (0.18) J	ND (0.19) J	ND (0.23) J	ND (2.6) J	ND (0.24) J	ND (0.15) J	ND (0.19) J	140 J	4.4 J	0.65	0.63	0.63
AOC11-9	12/06/15	0 - 1	N	22 J	2.5 J	ND (0.23) J	0.39 J	ND (0.15) J	ND (0.9) J	ND (0.15) J	ND (0.43) J	ND (0.18) J	0.47 J	ND (0.15) J	ND (2.5) J	ND (0.15) J	ND (0.075) J	ND (0.076) J	190 J	ND (3.4) J	0.89	1.1	1.1
	12/06/15	2 - 3	N	7.4 J	ND (0.83) J	ND (0.17) J	ND (0.11) J	ND (0.12) J	ND (0.25) J	0.58 J	ND (0.21) J	ND (0.14) J	ND (0.09) J	ND (0.1) J	ND (0.7) J	ND (0.1) J	ND (0.036) J	ND (0.11) J	59 J	ND (0.83) J	0.31	0.32	0.32
AOC11a-3	09/20/08	0 - 0.5	N	1,300 J	140 J	13 J	8.1 J	5.5 J	30 J	9.9 J	14 J	ND (1.4) J	ND (2.9) J	1.7 J	ND (290) J	1.8 J	ND (0.41) J	ND (1.1) J	12,000 J	440 J	26	42	42
	09/20/08	2 - 3	N	910 J	73 J	6.3 J	4.7 J	3.6 J	20 J	ND (2.6) J	9.2 J	ND (0.86) J	ND (2.5) J	ND (0.95) J	ND (130) J	1.6 J	ND (0.15) J	0.98 J	9,100 J	210 J	15	25	25
	09/20/08	5 - 6	N	3,600 J	470 J	41 J	19 J	18 J	110 J	8.5 J	33 J	4.4 J	6.7 J	ND (2.4) J	ND (1,400) J	4.4 J	ND (0.14) J	ND (0.12) J	32,000 J	1,200 J	100	150	150
	09/20/08	9 - 10	N	6 J	0.71 J	ND (0.18) J	ND (0.26) J	ND (0.17) J	ND (0.25) J	ND (0.16) J	ND (0.25) J	ND (0.16) J	ND (0.12) J	ND (0.11) J	ND (2.2) J	ND (0.11) J	ND (0.11) J	ND (0.13) J	57 J	ND (1) J	0.41	0.4	0.4
AOC11a-5	09/21/08	0 - 0.5	N	2,600 J	230 J	21 J	16 J	9.6 J	61 J	ND (3.8) J	ND (26) J	ND (0.84) J	ND (8) J*	4 J	ND (400) J	2.7 J	ND (0.86) J	2.6 J	26,000 J	750 J	42	72	72
	09/21/08	2 - 3	N	630 J	55 J	ND (4.7) J	4.7 J	ND (1.7) J	15 J	ND (1.7) J	ND (5.1) J	ND (0.5) J	2.6 J	ND (1) J	ND (97) J	ND (0.49) J	ND (0.26) J	ND (0.52) J	6,800 J	150 J	11	19	19
	09/21/08	5 - 6	N	ND (4.5) J	ND (0.46) J	ND (0.29) J	ND (0.18) J	ND (0.11) J	ND (0.18) J	ND (0.098) J	ND (0.17) J	ND (0.13) J	ND (0.12) J	ND (0.08) J	ND (0.4) J	ND (0.079) J	ND (0.11) J	ND (0.12) J	53 J	ND (1.4) J	0.28	0.24	0.24
	09/21/08	9 - 10	N	ND (0.93) J	ND (2.7) J	ND (0.32) J	ND (0.43) J	ND (0.22) J	ND (0.41) J	ND (0.2) J	ND (0.32) J	ND (0.26) J	ND (0.55) J	ND (0.26) J	ND (0.22) J	ND (0.26) J	ND (0.44) J	ND (0.31) J	ND (9.3) J	ND (0.54) J	ND (0.88)	ND (0.68)	ND (0.68)
AOC11a-SS-1	09/21/08	0 - 0.5	N	9.6 J	1.3 J	ND (0.52) J	ND (0.31) J	ND (0.28) J	ND (0.57) J	ND (0.26) J	ND (0.42) J	ND (0.35) J	ND (0.36) J	ND (0.17) J	ND (1.5) J	ND (0.2) J	ND (0.17) J	ND (0.27) J	68 J	ND (2.2)	0.69	0.63	0.63
	09/21/08	2 - 3	N	47 J	4.5 J	ND (0.95) J	ND (1) J	ND (0.71) J	ND (0.97) J	ND (1.1) J	ND (1.6) J	ND (0.94) J	ND (1.1) J	ND (0.68) J	ND (8.1) J	1.3 J	ND (0.29) J	ND (1.1) J	440 J	11 J	3.4	2.5	2.5
	09/21/08	5 - 6	N	1.8 J	ND (0.14) J	ND (0.3) J	ND (0.17) J	ND (0.084) J	ND (0.24) J	ND (0.076) J	ND (0.16) J	ND (0.2) J	ND (0.16) J	ND (0.2) J	ND (0.065) J	ND (0.2) J	ND (0.12) J	ND (0.22) J	9.7 J	ND (0.54) J	0.4	0.26	0.26
AOC11a-SS-3	09/20/08	0 - 0.5	N	2,000 J	190 J	15 J	ND (14) J	ND (0.45) J	47 J	ND (3.9) J	29 J	ND (1.5) J	ND (6) J*	2.4 J	ND (240) J	ND (2.8) J	ND (0.54) J	2.2 J	20,000 J	480 J	29	53	53
	09/20/08	5 - 6	N	4.3 J	ND (0.22) J	ND (0.25) J	ND (0.23) J	ND (0.12) J	ND (0.22) J	ND (0.11) J	ND (0.22) J	ND (0.14) J	ND (0.17) J	ND (0.096) J	ND (0.18) J	ND (0.096) J	ND (0.12) J	ND (0.11) J	33 J	ND (1.2) J	0.31	0.28	0.28
AOC11b-1	09/17/08	0 - 0.5	N	4.9 J	1.1 J	ND (0.13) J	ND (0.12) J	ND (0.099) J	ND (0.23) J	ND (0.23) J	ND (0.28) J	ND (0.11) J	ND (0.11) J	ND (0.16) J	ND (1.3) J	ND (0.57) J	ND (0.041) J	ND (0.039) J	54 J	ND (2)	0.52	0.36	0.36
	09/17/08	2 - 3	N	77 J	7.5 J	0.88 J	ND (0.87) J	0.55 J	2.2 J	ND (0.76) J	ND (1.5) J	ND (0.21) J	ND (0.5) J	ND (0.33) J	ND (13) J	0.66 J	ND (0.061) J	ND (0.24) J	720 J	18 J	2.2	2.7	2.7
	09/17/08	5 - 6	N	100 J	10 J	ND (0.83) J	ND (0.84) J	0.87 J	3.2 J	1.3 J	2 J	ND (0.36) J	ND (0.65) J	0.41 J	ND (16) J	1.4 J	ND (0.06) J	ND (0.21) J	920 J	21 J	3.5	3.8	3.8
AOC11c-4	01/28/16	0 - 1	N	520 J	56 J	4.6 J	4.1 J	ND (2.5) J	15 J	ND (1.7) J	6.4 J	ND (0.38) J	2 J	1.3 J	ND (110) J	ND (1) J	ND (0.19) J	0.81 J	4,800 J	180 J	12	18	18
	01/28/16	2 - 3	N	22 J	2.4 J	ND (0.28) J	ND (0.15) J	ND (0.19) J	ND (0.15) J	ND (0.18) J	ND (0.14) J	ND (0.22) J	ND (0.16) J	ND (0.28) J	ND (5.7) J	ND (0.24) J	ND (0.12) J	ND (0.19) J	510 J	3.7 J	0.79	0.93	0.93
	01/28/16	5 - 6	N	26 J	ND (3.8) J	ND (0.13) J	ND (0.26) J	ND (0.22) J	ND (0.19) J	ND (0.34) J	ND (0.4) J	ND (0.26) J	ND (0.14) J	ND (0.14) J	ND (20) J	ND (0.15) J	ND (0.031) J	ND (0.14) J	230 J	3.1 J	1.4	1.6	1.6
AOC11d-1	09/23/08	0 - 0.5	N	180 J	15 J	1.2 J	3.1 J	ND (1) J	6.6 J	1.4 J	4.8 J	ND (0.27) J	1.8 J	0.44 J	ND (19) J	0.73 J	ND (0.078) J	ND (0.42) J	1,800 J	38 J	5.2	7.2	7.2
	09/23/08	2.5 - 3	N	20 J	2.9 J	ND (0.22) J	ND (0.25) J	ND (0.11) J	0.64 J	ND (0.11) J	ND (0.53) J	ND (0.13) J	ND (0.1) J	ND (0.059) J	ND (2.5) J	ND (0.062) J	ND (0.047) J	ND (0.11) J	210 J	4.7 J	0.42	0.63	0.63
	09/23/08	5 - 6	N	8.8 J	1.2 J	ND (0.25) J	ND (0.11) J	ND (0.059) J	ND (0.33) J	ND (0.13) J	0.4 J	ND (0.069) J	ND (0.13) J	ND (0.056) J	ND (1.3) J	ND (0.099) J	ND (0.032) J	ND (0.036) J	81 J	2.2 J	0.3	0.36	0.36
AOC11e-1	09/23/08	0 - 0.5	N	4,100 J	510 J	52 J	39 J	28 J	130 J	16 J	70 J	5.9 J	26 J	11 J	ND (710) J	8.9 J	2.6 J	9.2 J	49,000 J	1,500 J	110	160	160
	09/23/08	2.5 - 3	N	88,000 J	17,000 J	1,600 J	250 J	430 J	2,200 J	610 J	430 J	100 J	90 J	30 J	ND (31,000) J	40 J	1.9 J	5.5 J	300,000 J	60,000 J	2,200	3,200	3,200

TABLE 3-7i

Sample Results: Dioxins and Furans
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC11e-2	09/24/08	0 - 0.5	N	3,000 J	380 J	31 J	29 J	30 J	120 J	ND (26) J	46 J	ND (2.2) J	ND (18) J*	ND (5.1) J	ND (850) J	ND (8.8) J	ND (1.5) J	ND (4) J	23,000 J	670 J	80	120	120
	09/24/08	2 - 3	N	17,000 J	ND (6) J	260 J	110 J	ND (7.2) J	610 J	ND (6.5) J	ND (9.8) J	ND (8.4) J	71 J	ND (11) J	ND (6,700) J	ND (11) J	ND (2.3) J	8.7 J	140,000 J	9,200 J	470	700	700
	09/24/08	5 - 6	N	38,000 J	10,000 J	860 J	140 J	220 J	1,300 J	70 J	270 J	49 J	72 J	17 J	ND (18,000) J	25 J	ND (1.8) J	ND (4) J	210,000 J	89,000 J	1,300	1,800	1,800
	09/24/08	9 - 10	N	9,700 J	2,000 J	140 J	28 J	46 J	250 J	72 J	ND (49) J	ND (9) J	12 J	ND (3.4) J	ND (4,200) J	ND (5) J	ND (0.51) J	ND (0.86) J	200,000 J	9,800 J	300	450	450
AOC11e-3	01/08/16	0 - 1	N	240 J	21 J	2 J	ND (2.4) J	ND (1.4) J	7.8 J	ND (1.9) J	5 J	ND (0.79) J	ND (1.6) J	ND (0.87) J	ND (31) J	1.5 J	ND (0.43) J	ND (0.31) J	1,800 J	39 J	5.8	7.8	7.8
	01/10/16	2 - 3	N	110 J	14 J	ND (0.9) J	ND (1.4) J	ND (1.1) J	ND (2.9) J	ND (0.73) J	ND (0.71) J	ND (0.42) J	ND (1.3) J	ND (0.4) J	ND (14) J	ND (0.3) J	ND (0.14) J	ND (0.14) J	830 J	17 J	2.2	3.3	3.3
	01/10/16	5 - 6	N	54 J	5.7 J	ND (0.33) J	ND (0.25) J	ND (0.33) J	ND (0.25) J	ND (0.32) J	ND (1.1) J	ND (0.38) J	ND (0.29) J	ND (0.25) J	ND (9.2) J	ND (0.6) J	ND (0.074) J	ND (0.17) J	430 J	9.8 J	1.3	1.6	1.6
	01/10/16	9 - 10	N	76 J	7.2 J	ND (0.88) J	ND (0.86) J	ND (0.39) J	ND (2.3) J	ND (0.66) J	1.8 J	ND (0.45) J	ND (0.79) J	ND (0.22) J	ND (11) J	ND (0.4) J	ND (0.1) J	ND (0.15) J	570 J	13 J	1.8	2.5	2.5
AOC11e-4	01/28/16	0 - 1	N	470 J	39 J	ND (3) J	4 J	ND (1.4) J	14 J	ND (1.8) J	6.3 J	ND (0.34) J	ND (2.5) J	ND (0.46) J	ND (80) J	ND (0.48) J	ND (0.15) J	ND (0.32) J	3,200 J	100 J	8.1	14	14
	01/28/16	2 - 3	N	19,000 J	5,000 J	390 J	110 J	130 J	680 J	73 J	180 J	22 J	53 J	14 J	ND (8,900) J	25 J	ND (0.45) J	3 J	220,000 J	30,000 J	680	940	940
	01/28/16	5 - 6	N	6,900 J	920 J	76 J	27 J	29 J	160 J	ND (14) J	54 J	9.2 J	17 J	4 J	ND (2,000) J	4.9 J	ND (0.25) J	ND (1.1) J	82,000 J	3,200 J	160	250	250
AOC11e-6	12/03/15	0 - 1	N	49 J	ND (3.5) J	ND (0.7) J	ND (0.3) J	ND (1.6) J	1.6 J	ND (1.4) J	ND (0.97) J	ND (0.54) J	ND (0.63) J	4.6 J	ND (24) J	2.6 J	ND (0.093) J	10 J	230 J	ND (5.5) J	15	4.5	4.5
PA-09	01/27/16	0 - 1	N	480 J	28 J	1.9 J	5.8 J	2.8 J	16 J	ND (3.2) J	7.9 J	ND (1.3) J	3.7 J	ND (1.8) J	ND (22) J	ND (1.8) J	ND (0.6) J	1.9 J	2,400 J	45 J	11	15	15
PA-10	01/27/16	0 - 1	N	4,600 J	320 J	20 J	47 J	27 J	130 J	22 J	66 J	4.8 J	28 J	9.1 J	ND (260) J	10 J	ND (2.3) J	3.9 J	41,000 J	530 J	85	140	140
	01/26/17	2 - 3	N	2.4 J	0.54 J	ND (0.11)	ND (0.15)	ND (0.09)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.1)	ND (0.25)	ND (0.17)	ND (0.89)	ND (0.37)	ND (0.14)	ND (0.14)	24 J	0.69 J	0.54	0.38	0.38
	01/26/17	5 - 6	N	7.2 J	0.93 J	ND (0.1)	ND (0.13)	ND (0.092)	ND (0.12)	ND (0.083)	ND (0.24)	ND (0.11)	ND (0.25)	ND (0.092)	ND (1.1)	ND (0.16)	ND (0.051)	ND (0.16)	79	1.6 J	0.43	0.38	0.38
PA-11	01/27/16	0 - 1	N	3,300 J	340 J	23 J	40 J	23 J	120 J	29 J	60 J	4.4 J	25 J	6.1 J	ND (340) J	9.7 J	ND (2.4) J	5.3 J	25,000 J	460 J	83	120	120
	01/25/17	2 - 3	N	51	7 J	ND (0.42)	0.77 J	ND (0.53)	ND (2)	0.78 J	1.2 J	ND (0.16)	ND (0.46)	ND (0.43)	ND (10)	ND (1.1)	ND (0.19)	ND (0.23)	410	11 J	2	2.1	2.1
	01/25/17	5 - 6	N	2,200	230	16	24	20	70	13	36	3.3 J	16	5.5 J	ND (290)	7.6 J	ND (2)	4.7 J	21,000	340	60	82	82
PA-12	01/27/16	0 - 1	N	20,000 J	1,500 J	95 J	45 J	160 J	410 J	59 J	94 J	60 J	22 J	24 J	ND (1,900) J	42 J	ND (3.3) J	9.5 J	290,000 J	6,000 J	280	520	520
	01/25/17	2 - 3	N	65	7.5 J	ND (0.96)	ND (0.57)	ND (0.37)	1.8 J	ND (0.49)	ND (1.1)	ND (0.26)	ND (0.24)	ND (0.3)	ND (5.3)	ND (0.3)	ND (0.1)	ND (0.14)	620	43	1	1.7	1.7
	01/25/17	5 - 6	N	210	19	1.8 J	1.7 J	ND (3.1)	6.9 J	2.9 J	ND (0.43)	ND (0.5)	ND (0.36)	10 J	ND (82)	ND (7.9)	ND (0.39)	ND (0.45)	1,900	40	11	10	10
SD-11A	03/07/16	0 - 1	N	2,700 J	ND (2.9) J	67 J	42 J	55 J	130 J	50 J	80 J	ND (3) J	ND (130) J*	ND (2.9) J	ND (2.7) J	ND (11) J	ND (4.4) J	ND (14) J	18,000 J	1,000 J	110	140	140
	03/07/16	2 - 3	N	3,300 J	ND (3.5) J	59 J	ND (28) J	41 J	110 J	23 J	ND (44) J	ND (5.4) J	ND (51) J*	240 R	ND (4.8) J	ND (250) J	ND (4.1) J	ND (12) J	33,000 J	1,800 J	190 JR	130 JR	130 JR
	03/07/16	5 - 6	N	1,800 J	260 J	ND (20) J	16 J	ND (3.7) J	64 J	12 J	35 J	ND (4.3) J	ND (15) J*	ND (3.8) J	ND (380) J	ND (4) J	ND (1.6) J	ND (2.6) J	18,000 J	670 J	44	67	67
SD-23	03/09/16	0 - 1	N	460 J	38 J	ND (2.4) J	5.9 J	3.4 J	14 J	3.4 J	8.2 J	ND (0.26) J	ND (3) J	ND (0.68) J	ND (37) J	2.3 J	ND (0.16) J	ND (0.22) J	4,300 J	67 J	9.1	14	14
SD-27	02/15/17	2 - 3	N	12 J	1.5 J	ND (0.22)	ND (0.49)	ND (0.15)	ND (0.48)	ND (0.14)	ND (0.47)	ND (0.18)	ND (0.47)	ND (0.17)	ND (4.6)	ND (0.17)	ND (0.41)	ND (0.11)	86	ND (3.4)	0.92	0.96	0.96

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the Interim Screening Level are circled.

-- not analyzed
ft bgs feet below ground surface

TABLE 3-7i

Sample Results: Dioxins and Furans
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-7j

Constituent Concentrations in Soil Compared to Screening Values
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]: # of Exceedences [7]	Background Value (BK) [1]: (BK)	Ecological Comparison Value (ECV) [2]: # of Exceedences [8]	Ecological Comparison Value (ECV) [2]: (ECV)	Residential Screening Level (RSL) [3]: # of Exceedences [8]	Residential Screening Level (RSL) [3]: (RSL)	RWQCB Environmental Screening Levels (ESL) [4]: # of Exceedences [8]	RWQCB Environmental Screening Levels (ESL) [4]: (ESL)	Commercial Screening Level (CSL) [5]: # of Exceedences [8]	Commercial Screening Level (CSL) [5]: (CSL)	Interim Screening Level (ISL) [6]: # of Exceedences [8]	Interim Screening Level (ISL) [6]: (ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	33	84 / 87 (97%)	2,200	32	(5.98)	20	(16)	NA	(NE)	NA	(NA)	NA	(NE)	20	(16)
TEQ Human	ng/kg	33	84 / 87 (97%)	3,200	34	(5.58)	NA	(NE)	18	(50)	NA	(NA)	7	(220)	18	(50)
TEQ Mammals	ng/kg	33	84 / 87 (97%)	3,200	34	(5.58)	34	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	34	(5.58)
Metals																
Antimony	mg/kg	56	0 / 173 (0%)	ND (2.8) ‡	NA	(NE)	0	(0.285)	0	(31)	NA	(NA)	0	(470)	0	(0.285)
Arsenic	mg/kg	56	173 / 173 (100%)	13	1	(11)	1	(11.4)	1	(0.11) *	NA	(NA)	1	(0.36) *	1	(11)
Barium	mg/kg	56	173 / 173 (100%)	1,300	6	(410)	6	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	6	(410)
Beryllium	mg/kg	56	0 / 173 (0%)	ND (5.1) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	56	1 / 173 (0.58%)	1.2	1	(1.1)	1	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	1	(1.1)
Chromium, Hexavalent	mg/kg	56	61 / 171 (36%)	16	29	(0.83)	0	(139.6)	29	(0.3)	NA	(NA)	2	(6.3)	29	(0.83)
Chromium, Hexavalent-SPLP	mg/L	2	2 / 2 (100%)	0.0164	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Chromium, total	mg/kg	56	173 / 173 (100%)	320	22	(39.8)	22	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	22	(39.8)
Chromium-SPLP	mg/L	2	2 / 2 (100%)	0.0399	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Cobalt	mg/kg	56	173 / 173 (100%)	11	0	(12.7)	0	(13)	0	(23)	NA	(NA)	0	(350)	0	(12.7)
Copper	mg/kg	56	173 / 173 (100%)	44	28	(16.8)	15	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	28	(16.8)
Lead	mg/kg	56	170 / 173 (98%)	220	58	(8.39)	58	(0.0166) *	2	(80)	NA	(NA)	0	(320)	58	(8.39)
Mercury	mg/kg	56	2 / 173 (1.2%)	0.37	NA	(NE)	2	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	2	(0.0125)
Molybdenum	mg/kg	56	26 / 173 (15%)	7.1	17	(1.37)	12	(2.25)	0	(390)	NA	(NA)	0	(5,800)	17	(1.37)
Nickel	mg/kg	56	173 / 173 (100%)	25	0	(27.3)	0	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	0	(27.3)
Selenium	mg/kg	56	2 / 173 (1.2%)	3.2	2	(1.47)	2	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	2	(1.47)
Thallium	mg/kg	56	0 / 173 (0%)	ND (10) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	56	173 / 173 (100%)	55	1	(52.2)	1	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	1	(52.2)
Zinc	mg/kg	56	173 / 173 (100%)	1,100	58	(58)	58	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	58	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	15	21 / 21 (100%)	20,000	2	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	2	(16,400)
Calcium	mg/kg	16	22 / 22 (100%)	45,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	16	22 / 22 (100%)	26,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	16	22 / 22 (100%)	12,000	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	16	22 / 22 (100%)	440	1	(402)	1	(220)	0	(1,800)	NA	(NA)	0	(6,900)	1	(402)
Potassium	mg/kg	16	22 / 22 (100%)	5,300	2	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	2	(4,400)
Sodium	mg/kg	16	21 / 22 (95%)	4,300	2	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	2	(2,070)
Cyanide	mg/kg	15	0 / 21 (0%)	ND (1.03) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Volatile Organic Compounds																
Methyl acetate	µg/kg	9	1 / 9 (11%)	17	NA	(NE)	NA	(NE)	0	(24,000)	NA	(NA)	0	(130,000,000)	0	(24,000,000)
Polycyclic Aromatic Hydrocarbons																
1-Methyl naphthalene	µg/kg	56	3 / 178 (1.7%)	14	NA	(NE)	NA	(NE)	0	(18,000)	NA	(NA)	0	(73,000)	0	(18,000)
2-Methyl naphthalene	µg/kg	56	8 / 178 (4.5%)	18	NA	(NE)	NA	(NE)	0	(240,000)	NA	(NA)	0	(3,000,000)	0	(240,000)
Acenaphthene	µg/kg	56	3 / 178 (1.7%)	11	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Acenaphthylene	µg/kg	56	4 / 178 (2.2%)	9.2	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	56	8 / 178 (4.5%)	38	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Benzo (a) anthracene	µg/kg	56	65 / 178 (37%)	1,600	NA	(NE)	NA	(NE)	1	(1,100)	NA	(NA)	0	(21,000)	1	(1,100)

TABLE 3-7j

Constituent Concentrations in Soil Compared to Screening Values
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
Benzo (a) pyrene	µg/kg	56	73 / 178 (41%)	1,600	NA	(NE)	NA	(NE)	11	(110)	NA	(NA)	0	(2,100)	11	(110)
Benzo (b) fluoranthene	µg/kg	56	95 / 178 (53%)	2,600	NA	(NE)	NA	(NE)	2	(1,100)	NA	(NA)	0	(21,000)	2	(1,100)
Benzo (ghi) perylene	µg/kg	56	67 / 178 (38%)	750	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	56	68 / 178 (38%)	930	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	56	82 / 178 (46%)	2,600	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	56	27 / 178 (15%)	210	NA	(NE)	NA	(NE)	1	(110)	NA	(NA)	0	(2,100)	1	(110)
Fluoranthene	µg/kg	56	98 / 178 (55%)	3,700	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Fluorene	µg/kg	56	3 / 178 (1.7%)	8.9	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	56	59 / 178 (33%)	790	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Naphthalene	µg/kg	56	5 / 178 (2.8%)	10	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	56	65 / 178 (37%)	1,300	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	56	95 / 178 (53%)	3,400	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	56	177 / 177 (100%)	1,383	16	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	56	178 / 178 (100%)	18,180	34	(267.4)	10	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	10	(1,160)
B(a)P Equivalent	µg/kg	56	109 / 178 (61%)	2,300	36	(55)	NA	(NE)	16	(110)	NA	(NA)	1	(2,100)	16	(110)
Polychlorinated biphenyls																
Aroclor 1016	µg/kg	35	1 / 93 (1.1%)	70	NA	(NE)	NA	(NE)	0	(4,100)	NA	(NA)	0	(27,000)	0	(4,100)
Aroclor 1254	µg/kg	35	29 / 93 (31%)	1,600	NA	(NE)	NA	(NE)	8	(240)	NA	(NA)	1	(970)	8	(240)
Aroclor 1260	µg/kg	35	7 / 93 (7.5%)	1,000	NA	(NE)	NA	(NE)	4	(240)	NA	(NA)	1	(990)	4	(240)
Total PCBs	µg/kg	35	29 / 93 (31%)	1,927	NA	(NE)	10	(204)	10	(230)	NA	(NA)	2	(940)	10	(204)
Pesticides																
4,4-DDE	µg/kg	14	1 / 34 (2.9%)	6.1	NA	(NE)	1	(2.1)	0	(2,000)	NA	(NA)	0	(9,300)	1	(2.1)
alpha-Chlordane	µg/kg	14	1 / 34 (2.9%)	12	NA	(NE)	0	(470)	0	(440)	NA	(NA)	0	(1,500)	0	(440)
Dieldrin	µg/kg	14	1 / 34 (2.9%)	6.7	NA	(NE)	1	(5)	0	(34)	NA	(NA)	0	(140)	1	(5)
gamma-Chlordane	µg/kg	14	1 / 34 (2.9%)	13	NA	(NE)	0	(470)	0	(440)	NA	(NA)	0	(1,500)	0	(440)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	45	31 / 121 (26%)	940	NA	(NE)	NA	(NE)	4	(230)	4	(230)	0	(1,100)	4	(230)
TPH as motor oil	mg/kg	45	68 / 121 (56%)	1,500	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-7j

Constituent Concentrations in Soil Compared to Screening Values
AOC 11 – Topographic Low Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-8a

Sample Results: Metals
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC12a-T1a	09/22/08	0 - 0.5	N	ND (2) J*	3.6	79	ND (1) *	ND (1)	ND (0.421)	13	3.4	5.6	8.3	ND (0.098) *	ND (1)	6.9	ND (1)	ND (1)	ND (2) *	19	26
	09/22/08	2 - 3	N	ND (2) *	3.7	14	ND (1) *	ND (1)	ND (0.402)	4.9	1.6	ND (2)	2.4	ND (0.1) *	ND (1)	2.7	ND (1)	ND (1)	ND (2) *	13	9
	09/22/08	7 - 8	N	ND (2) *	7	240	ND (2) *	ND (1)	ND (0.411)	22	7.8	12	3.8	ND (0.1) *	ND (2) *	17	ND (1)	ND (2)	ND (4.1) *	32	51
AOC12a-T1c	09/22/08	7 - 8	N	ND (2.1) *	8.4	110	ND (1) *	ND (1)	ND (0.409)	17	6.7	8.6	3.9	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	36	42
AOC12a-T2a	09/22/08	6 - 7	N	ND (2) *	4.4	58	ND (1) *	ND (1)	ND (0.419)	13	6.6	9	3.1	ND (0.1) *	1	10	ND (1)	ND (1)	ND (2) *	28	39
AOC12a-T2b	09/22/08	7 - 8	N	ND (2) *	4.9	25	ND (1) *	ND (1)	ND (0.409)	15	6.9	7.8	3.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	44
AOC12b-T1a	09/20/08	2 - 3	N	ND (2.1) *	4.9	81	ND (2.1) *	ND (1)	ND (0.416)	26	14	18	4.5	ND (0.1) *	ND (2.1) *	20	ND (1)	ND (2.1)	ND (4.1) *	41	57
AOC12b-T1b	09/20/08	2 - 3	N	ND (2.1) *	5.8	88	ND (2.1) *	ND (1)	ND (0.419)	26	9.6	14	4.9	ND (0.1) *	ND (2.1) *	20	2.5	ND (2.1)	ND (4.2) *	42	58
AOC12c-T1a	09/20/08	0 - 0.5	N	ND (2) J*	5.4	110 J	ND (2) *	ND (1)	ND (0.411)	28	8.4	13	7.1	ND (0.1) *	ND (2) *	18	ND (1)	ND (2)	ND (4) *	38	77
	09/20/08	2 - 3	N	ND (2.1) *	4.9	150	ND (2.1) *	ND (1)	ND (0.413)	25	9.3	11	4	ND (0.1) *	ND (2.1) *	18	ND (1)	ND (2.1)	ND (4.1) *	39	51
	09/20/08	10 - 11	N	ND (2.1) *	6	120	ND (2.1) *	ND (1)	ND (0.423)	25	8.7	9.6	4	ND (0.1) *	ND (2.1) *	18	ND (1)	ND (2.1)	ND (4.2) *	39	50
AOC12c-T1b	09/20/08	2 - 3	N	ND (2.1) *	5.1	140	ND (2.1) *	ND (1)	ND (0.431)	23	8.4	13	5.7	ND (0.1) *	ND (2.1) *	19	ND (1)	ND (2.1)	ND (4.1) *	36	49
	09/22/08	3 - 4	N	ND (2.1) *	6.5	160	ND (2.1) *	ND (1)	ND (0.419)	27	9.4	12	6.4	ND (0.11) *	ND (2.1) *	19	ND (1)	ND (2.1)	ND (4.1) *	40	57
	09/20/08	10 - 11	N	ND (2.1) *	4.7	93	ND (2.1) *	ND (1)	ND (0.415)	22	7.8	9.4	3.9	ND (0.1) *	ND (2.1) *	16	ND (1)	ND (2.1)	ND (4.1) *	35	45
AOC12c-T1c	09/20/08	10 - 11	N	ND (2.1) *	4.7	150	ND (2.1) *	ND (1.1) *	ND (0.424)	22	7.7	12	3.5	ND (0.1) *	ND (2.1) *	17	ND (1.1)	ND (2.1)	ND (4.2) *	35	49
	09/20/08	10 - 11	FD	ND (2.1) *	5	150	ND (2.1) *	ND (1)	ND (0.415)	23	7.7	11	3.8	ND (0.1) *	ND (2.1) *	17	ND (1)	ND (2.1)	ND (4.2) *	36	50
AOC12c-T2a	09/20/08	7 - 8	N	ND (2.1) *	4.2	67	ND (1.1) *	ND (1.1) *	ND (0.421)	19	7.2	10	3.4	ND (0.11) *	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1) *	33	50
AOC12c-T2b	09/20/08	7 - 8	N	ND (2.1) *	4.8	84	ND (2.1) *	ND (1)	ND (0.424)	21	7.5	10	3.9	ND (0.1) *	ND (2.1) *	16	ND (1)	ND (2.1)	ND (4.2) *	34	45

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-8b

Sample Results: Contract Laboratory Program Inorganics
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC12a-T1a	09/22/08	0 - 0.5	N	4,500	10,000 J	9,900 J	3,000 J	130	1,300	210	ND (1.05) *
AOC12c-T1a	09/20/08	0 - 0.5	N	12,000	31,000	23,000	8,300	290	2,700	340	ND (1.03) *

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-8c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
AOC12a-T1a	09/22/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.3	13	14	12	20 J	20	ND (5)	29	ND (5)	11	ND (5)	9.4	28	9.4	154.3	19
	09/22/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.1)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/22/08	7 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC12a-T1c	09/22/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC12a-T2a	09/22/08	6 - 7	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC12a-T2b	09/22/08	7 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC12b-T1a	09/20/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC12b-T1b	09/20/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.5	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	6.5	6
AOC12c-T1a	09/20/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.7	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.7	5.9
	09/20/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	09/20/08	10 - 11	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.3)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC12c-T1b	09/20/08	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.1	11	9.9	10	14	13	ND (5.2)	16	ND (5.2)	9.3	ND (5)	ND (5.2)	16	ND	107.3	16
	09/22/08	3 - 4	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	30	39	45	35	45	49	11	61	ND (5.2)	32	ND (5.2)	14	60	14	407	61
	09/20/08	10 - 11	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC12c-T1c	09/20/08	10 - 11	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	09/20/08	10 - 11	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC12c-T2a	09/20/08	7 - 8	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC12c-T2b	09/20/08	7 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-8d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Interim Screening Level [1]:	**46.9**
			Residential Regional Screening Levels [2]:	**6,300,000**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**46.9**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Di-n-butyl phthalate**
Category 1				
AOC12a-T1a	09/22/08	0 - 0.5	N	ND (330) *
	09/22/08	2 - 3	N	ND (330) *
	09/22/08	7 - 8	N	ND (340) *
AOC12a-T1c	09/22/08	7 - 8	N	ND (340) *
AOC12a-T2a	09/22/08	6 - 7	N	ND (340) *
AOC12a-T2b	09/22/08	7 - 8	N	ND (340) *
AOC12b-T1a	09/20/08	2 - 3	N	ND (340) *
AOC12b-T1b	09/20/08	2 - 3	N	ND (350) *
AOC12c-T1a	09/20/08	0 - 0.5	N	ND (330) *
	09/20/08	2 - 3	N	ND (340) *
	09/20/08	10 - 11	N	ND (350) *
AOC12c-T1b	09/20/08	2 - 3	N	ND (340) *
	09/22/08	3 - 4	N	ND (340) *
	09/20/08	10 - 11	N	ND (340) *
AOC12c-T1c	09/20/08	10 - 11	N	530
	09/20/08	10 - 11	FD	1,100
AOC12c-T2a	09/20/08	7 - 8	N	ND (350) *
AOC12c-T2b	09/20/08	7 - 8	N	ND (340) *

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-8e
Sample Results: Total Petroleum Hydrocarbons
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)
			Interim Screening Level [1]:	11,000
			Residential Regional Screening Levels [2]:	NE
			Residential DTSC-SL [3]:	NE
			RWQCB Environmental Screening Levels [4]:	11,000
			Ecological Comparison Values [5]:	NE
			Background [6]:	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as motor oil**
AOC12a-T1a	09/22/08	0 - 0.5	N	ND (10)
	09/22/08	2 - 3	N	ND (10)
	09/22/08	7 - 8	N	ND (10)
AOC12a-T1c	09/22/08	7 - 8	N	ND (10)
AOC12a-T2a	09/22/08	6 - 7	N	ND (10)
AOC12a-T2b	09/22/08	7 - 8	N	ND (10)
AOC12b-T1a	09/20/08	2 - 3	N	ND (10)
AOC12b-T1b	09/20/08	2 - 3	N	ND (10)
AOC12c-T1a	09/20/08	0 - 0.5	N	ND (10)
	09/20/08	2 - 3	N	ND (10)
	09/20/08	10 - 11	N	ND (10)
AOC12c-T1b	09/20/08	2 - 3	N	ND (10)
	09/22/08	3 - 4	N	22.5
	09/20/08	10 - 11	N	ND (10)
AOC12c-T1c	09/20/08	10 - 11	N	97.5 J
	09/20/08	10 - 11	FD	120 J
AOC12c-T2a	09/20/08	7 - 8	N	ND (10)
AOC12c-T2b	09/20/08	7 - 8	N	ND (10)

TABLE 3-8e

Sample Results: Total Petroleum Hydrocarbons
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-8f

Sample Results: General Chemistry Parameters
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	NE
			Residential Regional Screening Levels [2]:	NE
			Residential DTSC-SL [3]:	NE
			Ecological Comparison Values [4]:	NE
			Background [5]:	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC12a-T1a	09/22/08	0 - 0.5	N	7.97
	09/22/08	2 - 3	N	9.93
	09/22/08	7 - 8	N	8.31
AOC12a-T1c	09/22/08	7 - 8	N	8.98
AOC12a-T2a	09/22/08	6 - 7	N	8.86
AOC12a-T2b	09/22/08	7 - 8	N	9.61
AOC12b-T1a	09/20/08	2 - 3	N	8.34
AOC12b-T1b	09/20/08	2 - 3	N	9.12
AOC12c-T1a	09/20/08	0 - 0.5	N	8.47
	09/20/08	2 - 3	N	9.28
	09/20/08	10 - 11	N	7.88
AOC12c-T1b	09/20/08	2 - 3	N	9.2
	09/22/08	3 - 4	N	8.52
	09/20/08	10 - 11	N	8.23
AOC12c-T1c	09/20/08	10 - 11	N	8.1
	09/20/08	10 - 11	FD	8.25
AOC12c-T2a	09/20/08	7 - 8	N	9.25
AOC12c-T2b	09/20/08	7 - 8	N	7.76

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
μS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-8g

Sample Results: Pesticides
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC12a-T1a	09/22/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC12c-T1a	09/20/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-8h

Sample Results: Polychlorinated Biphenyls
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level[1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels[2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background[5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC12a-T1a	09/22/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	31	ND (17)	ND (17)	ND (17)	31
	09/22/08	2 - 3	N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (8.5)
AOC12c-T1a	09/20/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-8i
Sample Results: Asbestos
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Asbestos PLM/BULK [1]	Asbestos CARB435/ [2] PLM (%)	Asbestos TEM [3] (%)
Category 1						
AOC12a-T1a	09/22/08	0 - 0.5	N	Not Present	---	---
	09/22/08	2 - 3	N	---	ND (<0.1)	---
	09/22/08	7 - 8	N	---	ND (<0.1)	---
AOC12a-T1c	09/22/08	7 - 8	N	---	ND (<0.1)	---
AOC12a-T2a	09/22/08	6 - 7	N	---	ND (<0.1)	---
AOC12a-T2b	09/22/08	7 - 8	N	Not Present	---	---
AOC12b-T1a	09/20/08	2 - 3	N	Not Present	---	---
AOC12b-T1b	09/20/08	2 - 3	N	Not Present	---	---
AOC12c-T1a	09/20/08	0 - 0.5	N	Not Present	---	---
	09/20/08	2 - 3	N	Not Present	---	---
	09/20/08	10 - 11	N	Not Present	---	---
AOC12c-T1b	09/20/08	2 - 3	N	Not Present	---	---
	09/20/08	10 - 11	N	Not Present	---	---
AOC12c-T1c	09/20/08	10 - 11	N	Not Present	---	---
	09/20/08	10 - 11	FD	Not Present	---	---
AOC12c-T2a	09/20/08	7 - 8	N	Not Present	---	---
AOC12c-T2b	09/20/08	7 - 8	N	Not Present	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

---	not analyzed
ft bgs	feet below ground surface
FD	field duplicate
N	primary sample

1 Polarized light microscopy of bulk samples
2 California Air Resource Board Method 435 / polarized light microscopy of bulk samples
3 Transmission electron microscopy

TABLE 3-8j

Constituent Concentrations in Soil Compared to Screening Values
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Metals																
Antimony	mg/kg	11	0 / 17 (0%)	ND (2.1) ‡	NA	(NE)	0	(0.285)	0	(31)	NA	(NA)	0	(470)	0	(0.285)
Arsenic	mg/kg	11	17 / 17 (100%)	8.4	0	(11)	0	(11.4)	0	(0.11) *	NA	(NA)	0	(0.36) *	0	(11)
Barium	mg/kg	11	17 / 17 (100%)	240	0	(410)	0	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	0	(410)
Beryllium	mg/kg	11	0 / 17 (0%)	ND (2.1) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	11	0 / 17 (0%)	ND (1.1) ‡	0	(1.1)	0	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	0	(1.1)
Chromium, total	mg/kg	11	17 / 17 (100%)	28	0	(39.8)	0	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	0	(39.8)
Cobalt	mg/kg	11	17 / 17 (100%)	14	1	(12.7)	1	(13)	0	(23)	NA	(NA)	0	(350)	1	(12.7)
Copper	mg/kg	11	16 / 17 (94%)	18	1	(16.8)	0	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	1	(16.8)
Lead	mg/kg	11	17 / 17 (100%)	8.3	0	(8.39)	0	(0.0166) *	0	(80)	NA	(NA)	0	(320)	0	(8.39)
Mercury	mg/kg	11	0 / 17 (0%)	ND (0.11) ‡	NA	(NE)	0	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	0	(0.0125)
Molybdenum	mg/kg	11	1 / 17 (5.9%)	1	0	(1.37)	0	(2.25)	0	(390)	NA	(NA)	0	(5,800)	0	(1.37)
Nickel	mg/kg	11	17 / 17 (100%)	20	0	(27.3)	0	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	0	(27.3)
Selenium	mg/kg	11	1 / 17 (5.9%)	2.5	1	(1.47)	1	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	1	(1.47)
Thallium	mg/kg	11	0 / 17 (0%)	ND (4.2) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	11	17 / 17 (100%)	42	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	11	17 / 17 (100%)	77	1	(58)	1	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	1	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	2	2 / 2 (100%)	12,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	2	2 / 2 (100%)	31,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	2	2 / 2 (100%)	23,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	2	2 / 2 (100%)	8,300	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	2	2 / 2 (100%)	290	0	(402)	0	(220)	0	(1,800)	NA	(NA)	0	(6,900)	0	(402)
Potassium	mg/kg	2	2 / 2 (100%)	2,700	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	2	2 / 2 (100%)	340	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	2	0 / 2 (0%)	ND (1.05) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Semivolatile Organic Compounds																
Di-n-butyl phthalate	µg/kg	11	1 / 17 (5.9%)	1,100	NA	(NE)	1	(46.9)	0	(6,300,000)	NA	(NA)	0	(82,000,000)	1	(46.9)
Polycyclic Aromatic Hydrocarbons																
Benzo (a) anthracene	µg/kg	11	3 / 17 (18%)	30	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	11	3 / 17 (18%)	39	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Benzo (b) fluoranthene	µg/kg	11	3 / 17 (18%)	45	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (ghi) perylene	µg/kg	11	3 / 17 (18%)	35	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	11	3 / 17 (18%)	45	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	11	3 / 17 (18%)	49	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	11	1 / 17 (5.9%)	11	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Fluoranthene	µg/kg	11	5 / 17 (29%)	61	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	11	3 / 17 (18%)	32	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Phenanthrene	µg/kg	11	2 / 17 (12%)	14	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	11	3 / 17 (18%)	60	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	11	17 / 17 (100%)	14	0	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	11	17 / 17 (100%)	407	1	(267.4)	0	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	0	(1,160)

TABLE 3-8j

Constituent Concentrations in Soil Compared to Screening Values
AOC 12 – Fill Areas
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
B(a)P Equivalent	µg/kg	11	5 / 17 (29%)	61	1	(55)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Polychlorinated biphenyls																
Aroclor 1254	µg/kg	2	1 / 3 (33%)	31	NA	(NE)	NA	(NE)	0	(240)	NA	(NA)	0	(970)	0	(240)
Total PCBs	µg/kg	2	1 / 3 (33%)	31	NA	(NE)	0	(204)	0	(230)	NA	(NA)	0	(940)	0	(204)
Total Petroleum Hydrocarbons																
TPH as motor oil	mg/kg	11	2 / 17 (12%)	120	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. "San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final." Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-9a

Sample Results: Metals
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC14 White Powde	03/02/22 ⊖		N	ND (2) J*	2.9	150 J	ND (1) *	ND (1)	ND (1) *	16 J	ND (1) J	7.3	ND (1)	ND (0.1) *	ND (1) J	3.4 J	ND (1)	3.8	ND (1) *	21	17 J
AOC14 White Powde	03/02/22 ⊖		N	ND (2) J*	3.4	130 J	ND (1) *	ND (1)	ND (1) *	13 J	ND (1) J	4.1	ND (1)	ND (0.1) *	ND (1) J	ND (1) J	ND (1)	3.1	ND (1) *	18	18 J
AOC14 White Powde	03/02/22 ⊖		N	ND (2) J*	3.3	110 J	ND (1) *	ND (1)	ND (1) *	13 J	ND (1) J	5.4	ND (1) J	ND (0.1) *	ND (1) J	ND (1) J	ND (1)	3	ND (1) J*	13	8.7 J
AOC14-1	09/30/08	0 - 0.5	N	ND (2) *	4.8	190 J	ND (2) *	ND (1)	0.841	25	7.2	11	18	ND (0.1) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	30	70
	09/30/08	2 - 3	N	ND (2) *	4.8	220	ND (2) *	ND (1)	ND (0.412)	25	8.4	8.5	8.7	ND (0.1) *	ND (2) *	11	ND (1)	ND (2)	ND (4.1) *	36	47
	09/30/08	5 - 6	N	ND (2) *	2.2	180	ND (1) *	ND (1)	ND (0.412)	27	8.5	9.5	2.3	ND (0.1) *	1.6	12	ND (2) *	ND (1)	ND (2) *	34	38
	09/30/08	9 - 10	N	ND (2) *	2.3	160	ND (1) *	ND (1)	ND (0.403)	17	7.4	8.2	2.7	ND (0.099) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	34
	09/30/08	14 - 15	N	ND (2) *	2.7	140	ND (1) *	ND (1)	ND (0.412)	18	8.6	12	2.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	34
AOC14-2	09/30/08	0 - 0.5	N	ND (2) *	5.8	190	ND (2) *	ND (1)	0.768	28	6.8	44	18	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4.1) *	28	49
	09/30/08	2 - 3	N	ND (2.1) *	11	130	ND (11) *	ND (1.1) *	1.04	42	ND (11)	ND (21) *	7.6	ND (0.11) *	ND (11) *	12	ND (1.1)	ND (11) *	ND (21) *	25	34
	10/01/08 ⊖	3 - 3.25	N	ND (2.3) *	15	120	ND (11) *	ND (1.1) *	2.16	26	ND (11)	ND (23) *	ND (1.1)	ND (0.11) *	ND (11) *	4.5	ND (1.1)	ND (11) *	ND (23) *	13	ND (11)
	09/30/08	5 - 6	N	ND (2.1) *	8.5	150	ND (5.2) *	ND (1)	1.32	42	6.6	19	21	ND (0.11) *	ND (5.2) *	13	ND (1)	ND (5.2) *	ND (10) *	27	51
	09/30/08	9 - 10	N	ND (2) *	2.6	180	ND (1) *	ND (1)	ND (0.405)	21	8.5	16 J	1.8	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	40
	09/30/08	9 - 10	FD	ND (2) *	2.6	180	ND (1) *	ND (1)	ND (0.404)	21	8.4	11 J	1.9	ND (0.1) *	ND (1)	10	ND (2) *	ND (1)	ND (2) *	33	41
	09/30/08	14 - 15	N	ND (2) *	3.1	120	ND (1) *	ND (1)	ND (0.407)	15	7.2	9.1	2.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	28	35
AOC14-3	10/01/08	0 - 0.5	N	ND (2) J*	3.7	140	ND (1) *	ND (1)	ND (0.403)	31	7.5	12	8.4	ND (0.1) *	1.6	11	ND (1)	ND (1)	ND (2) *	30	52
	10/01/08	2 - 3	N	ND (2) *	3.3	90	ND (1) *	ND (1)	ND (0.405)	26	8.1	13	6.4	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	34	46
	10/01/08	5 - 6	N	ND (2) *	3.4	130	ND (1) *	ND (1)	0.877	32	6.6	11	9	ND (0.1) *	2.1	11	ND (1)	ND (1)	ND (2) *	26	40
	10/01/08	9 - 10	N	ND (2) *	2.1	140	ND (1) *	ND (1)	ND (0.404)	19	7.5	7.1	2	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	30	33
	10/01/08	14 - 15	N	ND (2) *	2.7	110	ND (1) *	ND (1)	ND (0.403)	17	7.6	12	2.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	32
AOC14-4	10/01/08	0 - 0.5	N	ND (2) *	4.5	99	ND (1) *	ND (1)	ND (0.402)	13	4.3	7.3	7.2	ND (0.1) *	ND (1)	7.1	ND (1)	ND (1)	ND (2) *	20	31
	10/01/08	2 - 3	N	ND (2) *	4.5	130	ND (1) *	ND (1)	ND (0.405)	16	4.4	6.2	3.5	ND (0.1) *	1.5	7.6	ND (1)	ND (1)	ND (2) *	21	23
	10/01/08	5 - 6	N	ND (2) *	4.1	110	ND (1) *	ND (1)	ND (0.403)	16	4.4	5.3	3.5	ND (0.1) *	1.5	7.3	ND (1)	ND (1)	ND (2) *	21	23
	10/01/08	9 - 10	N	ND (2) *	2.9	86	ND (1) *	ND (1)	ND (0.403)	8.2	3.4	2.9	2.8	ND (0.1) *	1.2	4.8	ND (1)	ND (1)	ND (2) *	19	16
	10/01/08	9 - 10	FD	ND (2) *	3.1	96	ND (1) *	ND (1)	ND (0.404)	8.1	3.3	2.7	2.9	ND (0.1) *	1.2	4.8	ND (1)	ND (1)	ND (2) *	18	16
	10/01/08	14 - 15	N	ND (2) *	3.4	130	ND (1) *	ND (1)	ND (0.406)	15	6.4	7.9	2.2	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	27	29
AOC14-5	10/02/08	0 - 0.5	N	ND (2) *	6.8	300	ND (2) *	ND (1)	ND (0.403)	15	6.8	9.6	5.3	ND (0.099) *	ND (2) *	10	ND (1)	ND (2)	ND (4) *	29	35
	10/02/08	2 - 3	N	ND (2) *	9	240	ND (2) *	ND (1)	ND (0.405)	17	6.1	16	16	ND (0.1) *	ND (2) *	13	ND (1)	ND (2)	ND (4) *	28	46
	10/02/08	5 - 6	N	ND (2) *	3.2	240	ND (1) *	ND (1)	ND (0.404)	15	7.3	7.9	2.7	ND (0.099) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	28	35
	10/02/08	9 - 10	N	ND (2) *	2.8	110	ND (1) *	ND (1)	ND (0.403)	15	7.6	9.5	2.3	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	30	35
	10/02/08	14 - 15	N	ND (2) *	3.2	90	ND (1) *	ND (1)	ND (0.406)	16	6.8	7.3	2.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	28	30
AOC14-6	10/02/08	0 - 0.5	N	ND (2) *	5	120	ND (1) *	ND (1)	ND (0.402)	11	4	6.1	7.4	ND (0.1) *	1.2	7	ND (1)	ND (1)	ND (2) *	20	35
	10/02/08	2 - 3	N	ND (2) *	6	210	ND (2) *	ND (1)	ND (0.403)	23	7.8	9.5	3.3	ND (0.1) *	2.4	11	ND (1)	ND (2)	ND (4) *	34	37
	10/02/08	5 - 6	N	ND (2) *	3.4	140	ND (1) *	ND (1)	ND (0.405)	18	7.7	9.1	2.3	ND (0.099) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	35
	10/02/08	9 - 10	N	ND (2) *	2.6	120	ND (1) *	ND (1)	ND (0.406)	18	8.3	9.6	2.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	39
	10/02/08	9 - 10	FD	ND (2) *	2.8	110	ND (1) *	ND (1)	ND (0.406)	18	8.4	9.7	2.3	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	39
	10/02/08	14 - 15	N	ND (2) *	3.3	110	ND (1) *	ND (1)	ND (0.402)	16	5.9	7.2	2.2	ND (0.1) *	ND (1)	9.3	ND (1)	ND (1)	ND (2) *	25	28

TABLE 3-9a

Sample Results: Metals
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC14-7	10/02/08	0 - 0.5	N	ND (2) *	5	160	ND (1) *	ND (1)	ND (0.404)	15	4.7	7.4	6.1	ND (0.099) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	25	31
	10/02/08	2 - 3	N	ND (2) *	5	170	ND (1) *	ND (1)	ND (0.405)	13	6.1	10	7.1	ND (0.1) *	ND (1)	9.3	ND (1)	ND (1)	ND (2) *	23	30
	10/02/08	5 - 6	N	ND (2) *	5.3	210	ND (2) *	ND (1)	ND (0.405)	18	7.5	10	4.8	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4) *	30	35
	10/02/08	9 - 10	N	ND (2) *	3.9	120	ND (1) *	ND (1)	ND (0.404)	26	10	14	2.9	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	38	46
	10/02/08	14 - 15	N	ND (2) *	3.7	150	ND (1) *	ND (1)	ND (0.401)	25	6.5	9.9	3.5	ND (0.1) *	2.4	11	ND (1)	ND (1)	ND (2) *	25	32
AOC14-8	10/02/08	0 - 0.5	N	ND (2) *	6.8	110	ND (2) *	ND (1)	ND (0.403)	12	4.9	7.9	6.4	ND (0.099) *	ND (2) *	9.4	ND (1)	ND (2)	ND (4) *	24	30
	10/02/08	2 - 3	N	ND (2) *	6.9	93	ND (2) *	ND (1)	ND (0.406)	15	5.5	8.8	6.8	ND (0.1) *	ND (2) *	11	ND (1)	ND (2)	ND (4) *	26	31
	10/02/08	5 - 6	N	ND (2) *	2.8	210	ND (1) *	ND (1)	ND (0.404)	18	8.6	6.6	2.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	35	39
	10/02/08	9 - 10	N	ND (2) *	3.3	89	ND (1) *	ND (1)	ND (0.404)	19	8.5	12	2.7	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	33	38
	10/02/08	9 - 10	FD	ND (2) *	3.3	92	ND (1) *	ND (1)	ND (0.404)	19	8.5	10	3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	35	39
	10/02/08	14 - 15	N	ND (2.1) J*	4.7	73 J	ND (1) *	ND (1)	ND (0.413)	23 J	9.7	18	3.7	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	36 J	42 J
AOC14-9	10/01/08	0 - 0.5	N	ND (2) *	5.3	140	ND (1) *	ND (1)	ND (0.404)	13	4.8	7.6	5.4	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2) *	23	28
	10/01/08	2 - 3	N	ND (2) *	6.3	170	ND (2) *	ND (1)	ND (0.407)	12	4.8	7.2	6	ND (0.1) *	ND (2) *	9.1	ND (1)	ND (2)	ND (4) *	23	29
	10/01/08	5 - 6	N	ND (2) *	3	61	ND (1) *	ND (1)	ND (0.4)	9	2.8	4.1	2.8	ND (0.1) *	ND (1)	5	ND (1)	ND (1)	ND (2) *	13	13
	10/01/08	9 - 10	N	ND (2) *	4.4	220	ND (1) *	ND (1)	ND (0.405)	15	5.5	7.6	3.6	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	23	29
	10/01/08	14 - 15	N	ND (2) J*	6.2	120 J	ND (2) *	ND (1)	ND (0.406)	13	5.9	8.2	5	ND (0.1) *	ND (2) *	9.4	ND (1)	ND (2)	ND (4.1) *	22	32
AOC14-10	10/01/08	0 - 0.5	N	ND (2) *	3.6	69	ND (1) *	ND (1)	ND (0.401)	10	2.4	3.5	3.5	ND (0.1) *	ND (1)	4.2	ND (1)	ND (1)	ND (2) *	13	14
	10/01/08	2 - 3	N	ND (2) *	2.9	65	ND (1) *	ND (1)	ND (0.401)	11	2.4	3.1	2.9	ND (0.1) *	ND (1)	3.9	ND (1)	ND (1)	ND (2) *	11	14
	10/01/08	5 - 6	N	ND (2) *	3.3	110	ND (1) *	ND (1)	ND (0.403)	12	2.9	4.6	3.4	ND (0.1) *	ND (1)	5.2	ND (1)	ND (1)	ND (2) *	14	17
	10/01/08	5 - 6	FD	ND (2) *	3.1	97	ND (1) *	ND (1)	ND (0.402)	12	2.6	4.1	3.1	ND (0.1) *	ND (1)	4.6	ND (1)	ND (1)	ND (2) *	13	15
	10/01/08	9 - 10	N	ND (2) *	5	81	ND (1) *	ND (1)	ND (0.409)	11	4.5	7.1	5.9	ND (0.1) *	ND (1)	8.7	ND (1)	ND (1)	2.2	21	28
	10/01/08	14 - 15	N	ND (2) *	7.1	110	ND (4) *	ND (1)	ND (0.404)	9.8	ND (4)	ND (8.1)	2.6	ND (0.1) *	ND (4) *	4.6	ND (1)	ND (4)	ND (8.1) *	13	13
AOC14-11	10/01/08	5 - 6	N	ND (2) *	5.5	140	ND (1) *	ND (1)	ND (0.406)	15	5.9	7.3	4.2	ND (0.1) *	1	9.9	ND (1)	ND (1)	ND (2) *	28	28
	10/01/08	9 - 10	N	ND (2) *	2.4	140	ND (1) *	ND (1)	ND (0.405)	18	8.4	13	2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	34	37
	10/01/08	14 - 15	N	ND (2) *	4	80	ND (1) *	ND (1)	ND (0.41)	20	8.5	9	3	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	35	39
AOC14-12	09/30/08	5 - 6	N	ND (2) *	3.2	190	ND (1) *	ND (1)	ND (0.406)	27	7.5	8.4	3.2	ND (0.1) *	2.4	9.8	1.5	ND (1)	ND (2) *	29	36
	09/30/08	9 - 10	N	ND (2) *	2.3	150	ND (1) *	ND (1)	ND (0.405)	17	7.4	7.7	3	ND (0.1) *	ND (1)	11	1.2	ND (1)	ND (2) *	29	37
	09/30/08	14 - 15	N	ND (2) *	3.2	140	ND (1) *	ND (1)	ND (0.401)	20	7.7	9.8	2.8	ND (0.1) *	1.2	13	ND (1)	ND (1)	ND (2) *	29	35
AOC14-13	09/30/08	5 - 6	N	ND (2) *	3.3	130	ND (1) *	ND (1)	ND (0.405)	22	5.8	11	3.6	ND (0.099) *	2	9	ND (1)	ND (1)	ND (2) *	21	30
	09/30/08	9 - 10	N	ND (2) *	1.9	140	ND (1) *	ND (1)	ND (0.405)	16	7.7	7.2	2.1	ND (0.1) *	ND (1)	10	1.6	ND (1)	ND (2) *	28	34
	09/30/08	14 - 15	N	ND (2) *	3.2	110	ND (1) *	ND (1)	ND (0.409)	16	7	11	2.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	33
	09/30/08	14 - 15	FD	ND (2) *	2.9	100	ND (1) *	ND (1)	ND (0.409)	16	7.5	13	2.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	29	33
AOC14-14E	02/18/16	0 - 1	N	ND (2) *	3.2	140	ND (1) *	ND (1)	0.27	16	7.2	11	7.2	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	27	44
	02/18/16	2 - 3	N	ND (2) *	3.3	71 J	ND (1) *	ND (1)	0.25	30	8.5	13	3	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	2.1	30	42
	02/18/16	2 - 3	FD	ND (2) *	3.3	87 J	ND (1) *	ND (1)	0.35	26	8.4	10	3.5	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	34	43
	02/18/16	5 - 5.5	N	ND (2) *	2.6	98	ND (1) *	ND (1)	0.8	27	7.8	9.8	2.1	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	2.2	29	38
	02/18/16	6 - 7	N	ND (2.1) *	3.2	77	ND (1) *	ND (1)	ND (0.2)	19	8.3	9.9	2.1	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	33	38
	02/18/16	9 - 10	N	ND (2) *	3.4	110	ND (1) *	ND (1)	ND (0.2)	20	7.4	8	2.6	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	2.6	29	39

TABLE 3-9a

Sample Results: Metals
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC14-14W	02/16/16	0 - 1	N	ND (2) *	2.5	150	ND (1) *	1.4	0.33	16	7.2	12	15	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	30	65
	02/16/16	2 - 3	N	ND (2) *	2	120	ND (1) *	ND (1)	ND (0.2)	13	7.1	12	3.4	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2) *	30	32
	02/16/16	5 - 5.5	N	ND (2.1) *	5.9	160	ND (1) *	1.9	6.7	420	7.3	170	160	0.22	4.5	27	ND (1)	ND (1)	ND (2.1) *	58	310
	02/16/16	6 - 7	N	ND (2) *	3.4	160	ND (1) *	1.3	2.7	65	7.7	80	70	ND (0.1) *	2.8	16	ND (1)	ND (1)	ND (2) *	27	260
	02/16/16	9 - 10	N	ND (2) *	2.5	95	ND (1) *	ND (1)	0.66	15	7	9.7	2.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	29	34
AOC14-15	02/18/16	0 - 1	N	ND (2) *	4	140	ND (1) *	ND (1)	ND (0.2)	14	7.8	11	2.2	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	29	36
	02/18/16	2 - 3	N	ND (2) *	3	190	ND (1) *	ND (1)	0.21	16	6.5	12	4.6	ND (0.1) *	ND (1)	9.9	ND (1)	ND (1)	2.3	26	40
	02/18/16	5 - 6	N	ND (2) *	2.9	170	ND (1) *	ND (1)	ND (0.2)	11	6.3	9.7	3.1	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	2.2	24	34
	02/18/16	7 - 8	N	ND (2) *	3.9	150	ND (1) *	ND (1)	ND (0.2)	16	6.9	8.9	2.5	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	2.2	30	33
AOC14-16E	02/23/16	0 - 1	N	ND (2) *	2	120	ND (1) *	ND (1)	0.26	20	7.6	9.6	5.9	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	32	62
	02/23/16	2 - 3	N	ND (2.1) *	2.3	150	ND (1) *	ND (1)	ND (0.21)	12	7.1	9	3	ND (0.1) *	ND (1)	8.6	ND (1)	ND (1)	ND (2.1) *	31	33
	02/23/16	5 - 6	N	ND (2) *	1.7	110	ND (1) *	ND (1)	0.22	12	5.7	6.7	3	ND (0.1) *	ND (1)	7.6	ND (1)	ND (1)	ND (2) *	23	30
	02/23/16	9 - 10	N	ND (2.1) *	1.3	97	ND (1) *	ND (1)	ND (0.21)	15	7	9	1.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	27	31
AOC14-16W	02/22/16	0 - 1	N	ND (2) J*	2.1	140 J	ND (1) *	ND (1)	ND (0.2)	13	6.2	7.3	2.7	0.41	ND (1)	8.4	ND (1) J	ND (1) J	ND (2) *	27 J	27
	02/22/16	2 - 3	N	3.3	19	100	ND (1) *	4.2	20	360	11	1,300	110	180	63	170	ND (1)	ND (1)	ND (2.1) *	26	110
	02/22/16	5 - 6	N	ND (2.2) *	4.3	130	ND (1.1) *	ND (1.1) *	3	50	7.7	100	28	72	14	17	ND (1.1)	ND (1.1)	ND (2.2) *	30	61
	02/22/16	7 - 8	N	ND (2) *	2.8	140	ND (1) *	ND (1)	0.96	23	7.6	35	14	17	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	45
	02/22/16	9 - 10	N	ND (2) *	1.4	110	ND (1) *	ND (1)	ND (0.2)	13	7.5	8.7	2.3	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	32	31
	02/22/16	9 - 10	FD	ND (2) *	ND (1)	100	ND (1) *	ND (1)	ND (0.2)	13	7	7.1	1.6	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2) *	29	30
AOC14-17E	02/24/16	9 - 10	N	ND (2) *	1.4	92	ND (1) *	ND (1)	ND (0.2)	11	6.4	7.8	2.7	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	27	31
AOC14-17W	02/24/16	0 - 1	N	ND (2) *	2.6	66	ND (1) *	ND (1)	ND (0.2)	9	3.3	4.7	3.9	ND (0.1) *	ND (1)	5	ND (1)	ND (1)	ND (2) *	17	21
	02/24/16	1 - 2	N	ND (2) *	3.4	90	ND (1) *	ND (1)	ND (0.2)	12	4.8	9.2	8.5	ND (0.1) *	ND (1)	7.9	ND (1)	ND (1)	ND (2) *	18	26
	02/24/16	2 - 3	N	ND (2) *	2.7	130	ND (1) *	ND (1)	ND (0.2)	13	6.4	7.7	3.7	ND (0.1) *	ND (1)	8	ND (1)	ND (1)	ND (2) *	27	29
	02/24/16	5 - 6	N	ND (2) *	3.1	180	ND (1) *	ND (1)	ND (0.2)	12	5	10	3.4	ND (0.1) *	ND (1)	7.3	ND (1)	ND (1)	ND (2) *	24	24
	02/24/16	9 - 10	N	ND (2) *	4.1	110	ND (1) *	ND (1)	ND (0.2)	12	6.2	8.6	2.6	ND (0.1) *	ND (1)	8	ND (1)	ND (1)	ND (2) *	33	29
AOC14-18	02/17/16	0 - 1	N	ND (2) *	4	250	ND (1) *	ND (1)	ND (0.2)	14	7.1	13	14	ND (0.1) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	30	41
	02/17/16	2 - 3	N	ND (2.1) *	3.8	280	ND (1) *	ND (1)	ND (0.21)	13	7.8	12	3.5	ND (0.1) *	ND (1)	9.5	ND (1)	ND (1)	ND (2.1) *	30	34
	02/17/16	5 - 6	N	ND (2.1) *	4.5	86	ND (1) *	ND (1)	ND (0.21)	13	8	12	4.4	ND (0.1) *	3	12	ND (1)	ND (1)	ND (2.1) *	33	36
AOC14-19	02/17/16	2 - 3	N	19	14	410	ND (1) *	7.1 J	ND (0.21)	380 J	17	1,800	1,600 J	ND (0.1) *	16	270	ND (1) J	ND (1)	ND (2.1) *	24 J	2,000 J
	02/17/16	3 - 4	N	ND (2.1) *	2.3	190	ND (1) *	ND (1)	ND (0.21)	13	6.7	19	6.3	ND (0.1) *	ND (1)	9.7	ND (1)	ND (1)	ND (2.1) *	27	41
AOC14-20	04/26/17	0 - 0.5	N	ND (2) *	1.5	120	ND (1) *	ND (1)	ND (0.2)	14	6.7	9	5.6	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	25	37
	04/26/17	2 - 3	N	ND (2) *	ND (1)	140	ND (1) *	ND (1)	ND (0.2)	12	5.8	7.1	3.4	ND (0.1) *	ND (1)	7.6	ND (1)	ND (1)	ND (2) *	25	31
	04/26/17	5 - 6	N	ND (2) *	1.6	130	ND (1) *	ND (1)	ND (0.2)	14	6.8	11	2.6	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	26	29
	04/26/17	8 - 9	N	ND (2) *	ND (1)	68	ND (1) *	ND (1)	ND (0.2)	9.9	5.7	6.5	1.1	ND (0.1) *	ND (1)	7.1	ND (1)	ND (1)	ND (2) *	23	24

TABLE 3-9a

Sample Results: Metals
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC14-21	04/26/17	0 - 0.5	N	ND (2) *	ND (1)	140	ND (1) *	ND (1)	ND (0.2)	15	7	10	11	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	26	41
	04/26/17	2 - 3	N	ND (2) *	ND (1)	130	ND (1) *	ND (1)	ND (0.2)	15	7.9	11	9.4	ND (0.1) *	ND (1)	9.7	ND (1)	ND (1)	ND (2) *	29	45
	04/26/17	2 - 3	FD	ND (2) *	1.5	130	ND (1) *	ND (1)	ND (0.2)	17	7.3	12	9.8	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	26	44
	04/26/17	5 - 6	N	ND (2) *	1.1	60	ND (1) *	ND (1)	ND (0.2)	13	5.7	40	1.4	ND (0.1) *	ND (1)	8	ND (1)	ND (1)	ND (2) *	24	39
	04/26/17	9 - 10	N	ND (2) *	1	98	ND (1) *	ND (1)	ND (0.2)	14	6.7	8.1	2	ND (0.1) *	ND (1)	9.2	ND (1)	ND (1)	ND (2) *	25	30
AOC14-SS-1	10/01/08	0 - 0.5	N	ND (2) *	5	150	ND (1) *	ND (1)	ND (0.405)	15	5.2	9.4	7.2	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	23	34
	10/01/08	2 - 3	N	ND (2) *	7.2	150	ND (2) *	ND (1)	0.456	22	5.7	15	11	0.25	ND (2) *	13	ND (1)	ND (2)	ND (4) *	23	32
	10/01/08	5 - 6	N	ND (2) *	6	240	ND (2) *	ND (1)	ND (0.406)	18	6.7	15	4.8	ND (0.1) *	ND (2) *	12	ND (1)	ND (2)	ND (4.1) *	25	35
	10/01/08	9 - 10	N	ND (2) *	2.8	120	ND (1) *	ND (1)	ND (0.402)	17	7	7.4	1.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	26	33
	10/01/08	14 - 15	N	ND (2) *	3.1	110	ND (1) *	ND (1)	ND (0.406)	13	6.7	9	2.6	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	27	31
AOC14-SS-2	10/01/08	0 - 0.5	N	ND (2) *	4.8	160	ND (1) *	ND (1)	ND (0.403)	14	4.8	8.8	4.8	ND (0.1) *	1.1	10	ND (1)	ND (1)	ND (2) *	24	27
	10/01/08	2 - 3	N	ND (2) *	7	160	ND (2) *	ND (1)	ND (0.407)	14	4.9	7.6	5.5	ND (0.1) *	ND (2) *	9.4	ND (1)	ND (2)	ND (4) *	22	29
	10/01/08	5 - 6	N	ND (2) *	7	150	ND (2) *	ND (1)	ND (0.405)	10	4.2	6.5	5.5	ND (0.1) *	ND (2) *	8.2	ND (1)	ND (2)	ND (4.1) *	19	25
	10/01/08	9 - 10	N	ND (2) *	4.6	130	ND (1) *	ND (1)	ND (0.407)	9.5	4.2	6.7	5.3	ND (0.1) *	ND (1)	8.1	ND (1)	ND (1)	ND (2) *	18	24
	10/01/08	14 - 15	N	ND (2) *	3.3	120	ND (1) *	ND (1)	ND (0.404)	17	7	9.6	3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	27	32
	10/01/08	14 - 15	FD	ND (2) *	3	130	ND (1) *	ND (1)	ND (0.405)	18	7.3	9.6	3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	28	33
AOC14-SS-3	10/02/08	0 - 0.5	N	ND (2) *	5.4	190	ND (1) *	ND (1)	ND (0.401)	17	7.1	11	3.8	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	30	35
	10/02/08	2 - 3	N	ND (2) *	4	180	ND (1) *	ND (1)	ND (0.402)	18	8.3	9.5	2.7	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	33	36
	10/02/08	5 - 6	N	ND (2) *	2.9	100	ND (1) *	ND (1)	ND (0.403)	12	5.4	6.7	2	ND (0.1) *	ND (1)	7.2	ND (1)	ND (1)	ND (2) *	23	29
	10/02/08	9 - 10	N	ND (2) *	3	160	ND (1) *	ND (1)	ND (0.404)	16	7	8.4	2.2	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	32
	10/02/08	14 - 15	N	ND (2) *	3.2	89	ND (1) *	ND (1)	ND (0.404)	17	8.9	9.5	2.4	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	34	35
AOC14-SS-4	10/02/08	0 - 0.5	N	ND (2) *	5	190	ND (1) *	ND (1)	ND (0.402)	15	6.3	8.1	5.1	ND (0.1) *	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	27	31
	10/02/08	2 - 3	N	ND (2) *	5	130	ND (1) *	ND (1)	ND (0.401)	14	4.4	6.9	10	ND (0.1) *	ND (1)	7	ND (1)	ND (1)	ND (2) *	20	27
	10/02/08	5 - 6	N	ND (2) *	4.5	120	ND (1) *	ND (1)	ND (0.403)	16	4.1	6.4	11	ND (0.1) *	1.5	6.7	ND (1)	ND (1)	ND (2) *	19	27
	10/02/08	9 - 10	N	ND (2) *	3	120	ND (1) *	ND (1)	ND (0.404)	16	8	11	2.3	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	32
	10/02/08	14 - 15	N	ND (2) *	2.7	120	ND (1) *	ND (1)	ND (0.405)	17	8.5	11	3	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	37
	10/02/08	14 - 15	FD	ND (2) *	2.5	120	ND (1) *	ND (1)	ND (0.405)	17	8.6	8.5	1.6	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	32	34
S1-20	11/01/98	3	N	---	---	---	---	---	0.7	31.8	---	15.7	---	---	---	14	---	---	---	---	49.4
S2-6	11/01/98 ϴ	3	N	---	---	---	---	---	12	45.5	---	1.8	---	---	---	0.57	---	---	---	---	14.5
	11/01/98	5	N	---	---	---	---	---	1.8	39.9	---	9.7	---	---	---	9.4	---	---	---	---	35.7
S2-62	11/01/98 ϴ	2	N	---	---	---	---	---	1	32	---	4.1	---	---	---	1.8	---	---	---	---	8.4
	11/01/98 ß	3	N	1.1 J	2.6	72.2	ND (0.89) *	ND (0.89)	---	72.7	5.9	22.2	7.9	0.046 J	0.86 J	47	0.99 J	ND (2.2)	ND (22) *	39.2	ND (29.3)
	11/01/98	4	N	---	---	---	---	---	ND (0.5)	21.9	---	11.5	---	---	---	10.2	---	---	---	---	39.8
S2-130	11/01/98	1	N	---	---	---	---	---	ND (0.5)	22.1	---	10.6	---	---	---	10.8	---	---	---	---	34.5
S3-15	11/01/98	2	N	---	---	---	---	---	ND (0.5)	13.8	---	9.4	---	---	---	7.5	---	---	---	---	24.1
	11/01/98	4	N	---	---	---	---	---	ND (0.5)	12.1	---	11	---	---	---	9.6	---	---	---	---	29.2
S3-72	11/01/98 ϴ	1	N	---	---	---	---	---	ND (0.5)	18.7	---	6.7	---	---	---	5.9	---	---	---	---	27
	11/01/98	2	N	---	---	---	---	---	ND (0.5)	11.3	---	8	---	---	---	8.6	---	---	---	---	28.9

TABLE 3-9a

Sample Results: Metals
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
S3-120	11/01/98	1	N	---	---	---	---	---	ND (0.5)	12.1	---	4.2	---	---	---	4.3	---	---	---	---	18
S4-4	11/01/98 Θ	4	N	---	---	---	---	---	15.4	23.4	---	3.2	---	---	---	0.43 J	---	---	---	---	1.9
	11/01/98	6	N	---	---	---	---	---	1	13.7	---	10.3	---	---	---	9.8	---	---	---	---	32.6
S4-95	11/01/98 Θ	2	N	---	---	---	---	---	ND (0.5)	10.3	---	2.5	---	---	---	4.3	---	---	---	---	4.3
	11/01/98	3	N	---	---	---	---	---	ND (0.5)	14.9	---	8.3	---	---	---	8.8	---	---	---	---	27
S4-160	11/01/98	2	N	---	---	---	---	---	0.5	25	---	11.8	---	---	---	10.9	---	---	---	---	38.2
S8-23	11/01/98 ß	3	N	0.43 J	4.3	154	0.19 J	ND (0.83)	---	28.7	8.4	14.3	12.5	0.092 J	0.42 J	21	0.59 J	ND (2.1)	ND (21) *	36.4	57
S8-30	11/01/98	3	N	---	---	---	---	---	0.5	12.8	---	10.8	---	---	---	9.4	---	---	---	---	40.9
GS-1	11/01/98 Θ	0	N	---	---	---	---	---	0.59	33.7	---	2.2	---	---	---	0.28 J	---	---	---	---	31.3
GS-2	11/01/98 Θ	0	N	---	---	---	---	---	ND (0.5)	21.9	---	8.2	---	---	---	6	---	---	---	---	32.7
RR-1	02/02/00	0	N	---	---	---	---	---	ND (0.5)	23.4	---	15.6	---	---	---	15.8	---	---	---	---	44
RR-2	02/02/00	0	N	---	---	---	---	---	ND (0.5)	16.1	---	13.8	---	---	---	12.3	---	---	---	---	37.5
RR-3	02/02/00	0	N	---	---	---	---	---	ND (0.5)	18.3	---	11.6	---	---	---	13	---	---	---	---	35
RR-4	02/02/00 Θ	0	N	---	---	---	---	---	0.6	19.4	---	19.2	---	---	---	0.92	---	---	---	---	27.1
RR-5	02/02/00	0	N	---	---	---	---	---	5.8	39.5	---	7.1	---	---	---	0.33	---	---	---	---	34.1
RR-6	02/02/00	0	N	---	---	---	---	---	4.8	74.9	---	7.5	---	---	---	0.39	---	---	---	---	243
RR-7	02/02/00 Θ	0	N	---	---	---	---	---	ND (0.51)	28.6	---	9.7	---	---	---	10.4	---	---	---	---	35.1
RR-8	02/02/00	0	N	---	---	---	---	---	ND (0.51)	28.9	---	9.9	---	---	---	7.4	---	---	---	---	29.8
RR-9	02/02/00 Θ	0	N	---	---	---	---	---	2.7	19.6	---	27.9	---	---	---	2.2	---	---	---	---	15.4
RR-10	02/02/00	0	N	---	---	---	---	---	ND (0.51)	18.8	---	12.9	---	---	---	11.6	---	---	---	---	36.3
RR-11	02/02/00	0	N	---	---	---	---	---	ND (0.51)	18.1	---	20.2	---	---	---	13.4	---	---	---	---	47.5
RR-12	02/02/00 Θ	0	N	---	---	---	---	---	ND (0.5)	17.5	---	3.8	---	---	---	1.5	---	---	---	---	11.3
Category 3																					
AOC14-13	10/01/08 Y	0.5 - 1.5	N	ND (2) *	18	160	ND (10) *	ND (1)	0.487	63	ND (10)	33	16	ND (0.1) *	98	57	ND (1)	ND (10) *	ND (20) *	ND (10)	39

TABLE 3-9a

Sample Results: Metals
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

Θ	white powder sample.
ß	black sandy material
Y	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-9b

Sample Results: Contract Laboratory Program Inorganics
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC14 White Powde	03/02/22 ⊖		N	4,400	280,000	3,100	20,000	55 J	560	2,900	---
AOC14 White Powde	03/02/22 ⊖		N	5,200	220,000	5,600	16,000	100	1,000	2,400	---
AOC14 White Powde	03/02/22 ⊖		N	3,800	270,000	2,400	15,000	46 J	420 J	13,000	---
AOC14-1	09/30/08	0 - 0.5	N	8,700	48,000	20,000	8,500	270	2,700	850	ND (1.02) *
AOC14-2	09/30/08	0 - 0.5	N	8,500	37,000	19,000	7,200	270	2,600	630	ND (1.02) *
AOC14-3	10/01/08	0 - 0.5	N	8,800	20,000	20,000	7,200	290	2,800 J	350	ND (1.01) *
AOC14-4	10/01/08	0 - 0.5	N	5,400	12,000	11,000	4,300	170	1,600	340	ND (1.01) *
AOC14-5	10/02/08	0 - 0.5	N	9,000	31,000	17,000	7,000	260	2,500	390	ND (1.01) *
AOC14-7	10/02/08	0 - 0.5	N	6,800	23,000	13,000	6,100	250	1,500	600	ND (1.01) *
AOC14-8	10/02/08	0 - 0.5	N	6,500	32,000	14,000	6,600	260	1,400	340	ND (1.01) *
AOC14-10	10/01/08	0 - 0.5	N	3,000	11,000	6,800	2,600	120	690	210	ND (1) *
AOC14-20	04/26/17	0 - 0.5	N	7,700	21,000	16,000	6,700	230	2,700	190	ND (0.101)
S1-20	11/01/98	3	N	---	26,300	23,100	8,330	---	2,250	ND (410)	---
S4-4	11/01/98 ⊖	4	N	---	379,000	425	23,000	---	89.6 J	6,590	---

TABLE 3-9b

Sample Results: Contract Laboratory Program Inorganics
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PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-9c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 14 – Railroad Debris Area
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
AOC14-1	09/30/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	6.1	8.2	10	8.1	9.6	ND (5.1)	9.2	ND (5.1)	5.3	ND (5.1)	ND (5.1)	9.4	ND	71.7	11
	09/30/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-2	09/30/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	ND (5.1)	ND (5.1)	ND (5.1)	5.9	ND (5.1)	ND (5.1)	ND (5.1)	5.2	5.9	5.2	22.8	5.9
	09/30/08	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	10/01/08 ⊖	3 - 3.25	N	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND (5.7) J	ND	ND	ND (6.6)
	09/30/08	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.5	8.7	12	12	12	12	ND (5.2)	12	ND (5.2)	7.6	ND (5.2)	ND (5.2)	13	ND	98.8	14
	09/30/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	9 - 10	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-3	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	15	10	15	7.1	12	18	ND (5)	22	ND (5)	6.1	ND (5)	6	20	6	125.2	16
	10/01/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.2	ND (5)	ND (5)	6.1	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.6	ND	16.9	6.1
	10/01/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.5	ND (5)	ND (5)	5.4	ND (5)	6.6	ND (5)	ND (5)	ND (5)	ND (5)	7.1	ND	24.6	6.1
	10/01/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-4	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (3.9)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	9 - 10	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.4)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-5	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.6	9.5	31	14	22	24	ND (5)	27	ND (5)	12	ND (4.6)	11	21	11	166.1	17
	10/02/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.9)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.2)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-6	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.9 J	ND (5)	5.9 J	5.2 J	ND (5)	5.9 J	ND (5)	ND (5)	ND (5)	ND (5)	5.3 J	ND	28.2	6.2
	10/02/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.6)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	14 - 15	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.3)	ND (5)	ND (5)	ND	ND	ND (5.8)

TABLE 3-9c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 14 – Railroad Debris Area
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels[2]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL[3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background[5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC14-7	10/02/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.7	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	7.7	5.9
	10/02/08	2 - 3	N	ND (5)	ND (5)	ND (5)	6.8	17	ND (5)	5.9	16	17	10	10	ND (5)	6.6	ND (5)	10	ND (4.1)	ND (5)	6.6	23.8	82.1	11
	10/02/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	14 - 15	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.6)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC14-8	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	13	12	13	12	14	14	13	5.1	ND (5)	12	ND (4.6)	ND (5)	5.7	ND	113.8	29
	10/02/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	9 - 10	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.9)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-9	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.9)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.4)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-10	10/01/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.7)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.4)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	5 - 6	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-11	10/01/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.4)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-12	09/30/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	22	180	84	110	40	82	210	17	350	ND (5.1)	39	ND (5.1)	120	310	142	1,422	130
	09/30/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	14 - 15	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC14-13	09/30/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/30/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	09/30/08	14 - 15	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-9c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2]:				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC14-14E	02/18/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	10	7.8	15	8.1	6.4	8.8	ND (5.1)	13	ND (5.1)	6.1	ND (5.1)	ND (5.1)	14	ND	89.2	14
	02/18/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/18/16	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/18/16	5 - 5.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
	02/18/16	6 - 7	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/18/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-14W	02/16/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	1,000	550	840	9.6	360	1,100	ND (5.1)	2,100	ND (5.1)	8.2	ND (4.6)	380	2,100	380	8,068	740
	02/16/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/16/16	5 - 5.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	02/16/16	6 - 7	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	390	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	390	5.9
	02/16/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-15	02/18/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/18/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/18/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (8.2)
	02/18/16	7 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (8.2)
AOC14-16E	02/23/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	15	ND (51)	ND (51)	ND (51)	ND (51)	15	ND (51)	22	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	20	ND	72	58
	02/23/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	17	10	17	8.3	12 J	15	ND (5.2)	38	ND (5.2)	6.2	ND (5.2)	7.3	33	7.3	156.5	17
	02/23/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/23/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC14-16W	02/22/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (59)
	02/22/16	2 - 3	N	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (260) *	ND (260)	ND (260)	ND (260)	ND (26)	ND (260) *	ND (26)	ND (26)	ND (260)	ND (7.4)	ND (26)	ND (26)	ND	ND	ND (290) *
	02/22/16	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (55)	ND (55)	ND (55)	ND (55)	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (61)
	02/22/16	7 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/22/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (5)	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND	ND	ND (56)
	02/22/16	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)
AOC14-17E	02/24/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (59)
AOC14-17W	02/24/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/24/16	1 - 2	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/24/16	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	20	14	25	9.4	15 J	21	ND (5)	39	ND (5)	8.1	ND (5)	7.1	32	7.1	183.5	22
	02/24/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/24/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-19	02/17/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	12	ND (52)	ND (52)	ND (52)	ND (52)	16	ND (52)	17	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	18	ND	63	59
	02/17/16	3 - 4	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC14-20	04/26/17	0 - 0.5	N	---	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330) *	ND (330)	ND (330) J	ND (330)	ND (330)	ND (330) J*	ND (330) J	ND (330)	ND (330) J	ND (6.5)	ND (330)	ND (330) J	ND	ND	ND (380) *

TABLE 3-9c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
AOC14-SS-1	10/01/08	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11 J	5.3 J	9.8 J	11 J	ND (5.1)	8.1 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1 J	ND	52.3	6.8
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-SS-2	10/01/08	0 - 0.5	N	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	26	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND	26	29
	10/01/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/01/08	14 - 15	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-SS-3	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.4)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (3.9)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC14-SS-4	10/02/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (3.8)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/02/08	14 - 15	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/02/08	14 - 15	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
S2-62	11/01/98 [ß]	3	N	---	ND (550)	ND (550)	ND (550)	ND (550)	ND (550)	ND (550) *	ND (550)	ND (550)	ND (550)	ND (550)	ND (550) *	ND (550)	ND (550)	ND (550)	ND (550)	ND (550)	ND (550)	ND	ND	ND (640) *
S8-23	11/01/98 [ß]	3	N	---	ND (21,000)	ND (21,000)	ND (21,000)	ND (21,000)	ND (21,000) *	ND (21,000) *	ND (21,000) *	ND (21,000)	ND (21,000) *	ND (21,000)	ND (21,000) *	ND (21,000)	ND (21,000)	ND (21,000) *	ND (21,000) *	ND (21,000)	ND (21,000)	ND	ND	ND (24,000) *
Category 3																								
AOC14-13	10/01/08 [Y]	0.5 - 1.5	N	ND (5) J	ND (5) J	ND (5) J	ND (5) J	ND (5) J	16 J	12 J	17 J	6.6 J	12 J	17 J	ND (5) J	25 J	ND (5) J	5.8 J	ND (5) J	5.3 J	22 J	5.3	133.4	19

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

Θ	white powder sample.
ß	black sandy material
Y	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-9d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	**130,000**	**5,100**	**500**	**250,000,000**	**2,870**	**290,000**	**1,800**
			Residential Regional Screening Levels [2]:	**130,000**	**5,100**	**6,300,000**	**250,000,000**	**39,000**	**290,000**	**1,800**
			Residential DTSC-SL [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Background [5]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
Category 1										
AOC14-1	09/30/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	ND (670)
	09/30/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	09/30/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-2	09/30/08	0 - 0.5	N	ND (1,600)	ND (1,700)	430	ND (1,700)	ND (340)	ND (340)	ND (670)
	09/30/08	2 - 3	N	ND (1,700)	ND (1,800)	ND (350)	ND (1,800)	ND (350)	ND (350)	---
	10/01/08 ϴ	3 - 3.25	N	ND (1,800) J	ND (1,900) J	ND (370) J	ND (1,900) J	ND (370) J	ND (370) J	---
	09/30/08	5 - 6	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	09/30/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	9 - 10	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-3	10/01/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	640	ND (330)	ND (660)
	10/01/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---

TABLE 3-9d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	**130,000**	**5,100**	**500**	**250,000,000**	**2,870**	**290,000**	**1,800**
			Residential Regional Screening Levels [2]:	**130,000**	**5,100**	**6,300,000**	**250,000,000**	**39,000**	**290,000**	**1,800**
			Residential DTSC-SL [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Background [5]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
AOC14-4	10/01/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	ND (660)
	10/01/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	9 - 10	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-5	10/02/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	ND (660)
	10/02/08	2 - 3	N	ND (4,000)	ND (4,100)	ND (830) *	ND (4,100)	ND (830)	ND (830)	---
	10/02/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700) J	ND (330)	ND (330)	---
	10/02/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-6	10/02/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-7	10/02/08	0 - 0.5	N	ND (4,000)	ND (4,200)	ND (830) *	ND (4,200)	ND (830)	ND (830)	ND (1,700)
	10/02/08	2 - 3	N	ND (4,000)	ND (4,100)	ND (830) *	ND (4,100)	ND (830)	ND (830)	---
	10/02/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	10/02/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---

TABLE 3-9d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	130,000	5,100	500	250,000,000	2,870	290,000	1,800
			Residential Regional Screening Levels [2]:	130,000	5,100	6,300,000	250,000,000	39,000	290,000	1,800
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
AOC14-8	10/02/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	ND (660)
	10/02/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-9	10/01/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-10	10/01/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	ND (660)
	10/01/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	5 - 6	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700) J	ND (340)	ND (340)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-11	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---

TABLE 3-9d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	**130,000**	**5,100**	**500**	**250,000,000**	**2,870**	**290,000**	**1,800**
			Residential Regional Screening Levels [2]:	**130,000**	**5,100**	**6,300,000**	**250,000,000**	**39,000**	**290,000**	**1,800**
			Residential DTSC-SL [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Background [5]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
AOC14-12	09/30/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-13	09/30/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	09/30/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	09/30/08	14 - 15	FD	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-14E	02/18/16	0 - 1	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	02/18/16	2 - 3	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/18/16	2 - 3	FD	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/18/16	5 - 5.5	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	02/18/16	6 - 7	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/18/16	9 - 10	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-14W	02/16/16	0 - 1	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/16/16	2 - 3	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/16/16	5 - 5.5	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (3,400) *	ND (3,400)	---
	02/16/16	6 - 7	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/16/16	9 - 10	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-15	02/18/16	0 - 1	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/18/16	2 - 3	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	02/18/16	5 - 6	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	02/18/16	7 - 8	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---

TABLE 3-9d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	**130,000**	**5,100**	**500**	**250,000,000**	**2,870**	**290,000**	**1,800**
			Residential Regional Screening Levels [2]:	**130,000**	**5,100**	**6,300,000**	**250,000,000**	**39,000**	**290,000**	**1,800**
			Residential DTSC-SL [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Background [5]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
AOC14-16E	02/23/16	0 - 1	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/23/16	2 - 3	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/23/16	5 - 6	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/23/16	9 - 10	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-16W	02/22/16	0 - 1	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/22/16	2 - 3	N	ND (43,000)	ND (43,000) *	ND (8,500) *	ND (43,000)	ND (85,000) *	ND (85,000)	---
	02/22/16	5 - 6	N	ND (1,800)	ND (1,800)	ND (360)	ND (1,800)	ND (360)	ND (360)	---
	02/22/16	7 - 8	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	02/22/16	9 - 10	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	630	---
	02/22/16	9 - 10	FD	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-17E	02/24/16	9 - 10	N	ND (1,700)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-17W	02/24/16	0 - 1	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/24/16	1 - 2	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/24/16	2 - 3	N	ND (1,700) J	ND (1,700) J	ND (330) J	ND (1,700) J	ND (330) J	ND (330) J	---
	02/24/16	5 - 6	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/24/16	9 - 10	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-19	02/17/16	2 - 3	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	02/17/16	3 - 4	N	ND (1,700)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-20	04/26/17	0 - 0.5	N	1,700 R	1,700 R	ND (330)	1,700 R	ND (330)	ND (330)	660 R

TABLE 3-9d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
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PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	**130,000**	**5,100**	**500**	**250,000,000**	**2,870**	**290,000**	**1,800**
			Residential Regional Screening Levels [2]:	**130,000**	**5,100**	**6,300,000**	**250,000,000**	**39,000**	**290,000**	**1,800**
			Residential DTSC-SL [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Background [5]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
AOC14-SS-1	10/01/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
AOC14-SS-2	10/01/08	0 - 0.5	N	ND (16,000)	ND (17,000) *	ND (3,300) *	ND (17,000)	ND (3,300) *	ND (3,300)	---
	10/01/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	10/01/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (340)	ND (1,700)	ND (340)	ND (340)	---
	10/01/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/01/08	14 - 15	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-SS-3	10/02/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
AOC14-SS-4	10/02/08	0 - 0.5	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	2 - 3	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	5 - 6	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	9 - 10	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	14 - 15	N	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---
	10/02/08	14 - 15	FD	ND (1,600)	ND (1,700)	ND (330)	ND (1,700)	ND (330)	ND (330)	---

TABLE 3-9d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)						
			Interim Screening Level [1]:	130,000	5,100	500	250,000,000	2,870	290,000	1,800
			Residential Regional Screening Levels [2]:	130,000	5,100	6,300,000	250,000,000	39,000	290,000	1,800
			Residential DTSC-SL [3]:	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4]:	NE	NE	NE	NE	NE	NE	NE
			Background [5]:	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**2,4-Dinitrophenol**	**4,6-Dinitro-2-methylphenol**	**4-Methylphenol**	**Benzoic acid**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Hexachlorocyclopentadiene**
S2-62	11/01/98 ß	3	N	ND (2,800)	ND (2,800)	---	---	ND (550)	ND (550)	ND (550)
S8-23	11/01/98 ß	3	N	ND (100,000)	ND (100,000) *	---	---	ND (21,000) *	ND (21,000)	ND (21,000) *
Category 3										
AOC14-13	10/01/08 Y	0.5 - 1.5	N	ND (1,600) J	ND (1,700) J	ND (330) J	ND (1,700) J	ND (330) J	ND (330) J	---

TABLE 3-9d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

Only detected SVOCs and VOCs are presented.

ϴ	white powder sample.
ß	black sandy material
Ƴ	debris sample
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met.
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-9e
Sample Results: Total Petroleum Hydrocarbons
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	230	11,000
			Residential Regional Screening Levels [2] :	NE	NE
			Residential DTSC-SL [3] :	NE	NE
			RWQCB Environmental Screening Levels [4] :	230	11,000
			Ecological Comparison Values [5] :	NE	NE
			Background [6] :	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC14-1	09/30/08	0 - 0.5	N	ND (10)	30.8 J
	09/30/08	2 - 3	N	ND (10)	13.5
	09/30/08	5 - 6	N	ND (10)	28.6
	09/30/08	9 - 10	N	ND (10)	ND (10)
	09/30/08	14 - 15	N	ND (10)	ND (10)
AOC14-2	09/30/08	0 - 0.5	N	34.1	252
	09/30/08	2 - 3	N	14.1	64.1
	10/01/08 ϴ	3 - 3.25	N	ND (10) J	ND (10) J
	09/30/08	5 - 6	N	ND (10)	164
	09/30/08	9 - 10	N	ND (10)	26.2
	09/30/08	9 - 10	FD	ND (10)	21.5
	09/30/08	14 - 15	N	ND (10)	ND (10)
AOC14-3	10/01/08	0 - 0.5	N	ND (10)	10.9
	10/01/08	2 - 3	N	ND (10)	ND (10)
	10/01/08	5 - 6	N	ND (10)	11.6
	10/01/08	9 - 10	N	ND (10)	ND (10)
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-4	10/01/08	0 - 0.5	N	ND (10)	ND (10)
	10/01/08	2 - 3	N	ND (10)	ND (10)
	10/01/08	5 - 6	N	ND (10)	ND (10)
	10/01/08	9 - 10	N	ND (10)	ND (10)
	10/01/08	9 - 10	FD	ND (10)	ND (10)
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-5	10/02/08	0 - 0.5	N	ND (10)	ND (10)
	10/02/08	2 - 3	N	ND (10)	10.3
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	9 - 10	N	ND (10)	ND (10)
	10/02/08	14 - 15	N	10 J	10 J
AOC14-6	10/02/08	0 - 0.5	N	17	67.4
	10/02/08	2 - 3	N	ND (10)	10.6
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	9 - 10	N	ND (10)	ND (10)
	10/02/08	9 - 10	FD	ND (10)	ND (10)
	10/02/08	14 - 15	N	10 J	10 J
AOC14-7	10/02/08	0 - 0.5	N	ND (10)	21.1
	10/02/08	2 - 3	N	ND (10)	14.3
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	9 - 10	N	ND (10)	14.8
	10/02/08	14 - 15	N	10 J	11.4 J

TABLE 3-9e

Sample Results: Total Petroleum Hydrocarbons
AOC 14 – Railroad Debris Area
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PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC14-8	10/02/08	0 - 0.5	N	ND (10)	ND (10)
	10/02/08	2 - 3	N	ND (10)	ND (10)
	10/02/08	5 - 6	N	ND (10)	ND (10)
	10/02/08	9 - 10	N	ND (10)	ND (10)
	10/02/08	9 - 10	FD	ND (10)	ND (10)
	10/02/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-9	10/01/08	0 - 0.5	N	ND (10)	57.5 J
	10/01/08	2 - 3	N	ND (10)	22.1 J
	10/01/08	5 - 6	N	ND (10)	57 J
	10/01/08	9 - 10	N	ND (10)	14 J
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-10	10/01/08	0 - 0.5	N	ND (10)	ND (10)
	10/01/08	2 - 3	N	ND (10)	ND (10)
	10/01/08	5 - 6	N	ND (10)	21.2
	10/01/08	5 - 6	FD	ND (10)	23.3
	10/01/08	9 - 10	N	ND (10)	ND (10)
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-11	10/01/08	5 - 6	N	ND (10)	23
	10/01/08	9 - 10	N	ND (10)	ND (10)
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-12	09/30/08	5 - 6	N	ND (10)	33
	09/30/08	9 - 10	N	ND (10)	ND (10)
	09/30/08	14 - 15	N	ND (10)	ND (10)
AOC14-13	10/01/08 Y	0.5 - 1.5	N	ND (10) J	89.1 J
	09/30/08	5 - 6	N	ND (10)	28
	09/30/08	9 - 10	N	ND (10)	ND (10)
	09/30/08	14 - 15	N	ND (10)	ND (10)
	09/30/08	14 - 15	FD	ND (10)	ND (10)
AOC14-14E	02/18/16	0 - 1	N	ND (10)	ND (10)
	02/18/16	2 - 3	N	ND (10)	ND (10)
	02/18/16	2 - 3	FD	ND (10)	ND (10)
	02/18/16	5 - 5.5	N	ND (10)	ND (10)
	02/18/16	6 - 7	N	ND (10)	ND (10)
	02/18/16	9 - 10	N	ND (10)	ND (10)
AOC14-14W	02/16/16	0 - 1	N	ND (10)	19
	02/16/16	2 - 3	N	ND (10)	ND (10)
	02/16/16	5 - 5.5	N	53	460
	02/16/16	6 - 7	N	29	240
	02/16/16	9 - 10	N	ND (10)	ND (10)

TABLE 3-9e
Sample Results: Total Petroleum Hydrocarbons
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC14-15	02/18/16	0 - 1	N	ND (10)	ND (10)
	02/18/16	2 - 3	N	ND (10)	ND (10)
	02/18/16	5 - 6	N	ND (10)	ND (10)
	02/18/16	7 - 8	N	ND (10)	ND (10)
AOC14-16E	02/23/16	0 - 1	N	ND (10)	ND (10)
	02/23/16	2 - 3	N	ND (10)	13
	02/23/16	5 - 6	N	ND (10)	ND (10)
	02/23/16	9 - 10	N	ND (10)	ND (10)
AOC14-16W	02/22/16	0 - 1	N	ND (10)	ND (10)
	02/22/16	2 - 3	N	630	4,500
	02/22/16	5 - 6	N	76	540
	02/22/16	7 - 8	N	37	230
	02/22/16	9 - 10	N	ND (10)	ND (10)
	02/22/16	9 - 10	FD	ND (10)	ND (10)
AOC14-17E	02/24/16	9 - 10	N	ND (10)	ND (10)
AOC14-17W	02/24/16	0 - 1	N	ND (10)	ND (10)
	02/24/16	1 - 2	N	ND (10)	ND (10)
	02/24/16	2 - 3	N	ND (10)	ND (10)
	02/24/16	5 - 6	N	ND (10)	ND (10)
	02/24/16	9 - 10	N	ND (10)	ND (10)
AOC14-19	02/17/16	2 - 3	N	13	79
	02/17/16	3 - 4	N	47	410
AOC14-SS-1	10/01/08	0 - 0.5	N	ND (10) J	ND (10) J
	10/01/08	2 - 3	N	ND (10) J	56.7 J
	10/01/08	5 - 6	N	ND (10) J	38.9 J
	10/01/08	9 - 10	N	ND (10) J	ND (10) J
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
AOC14-SS-2	10/01/08	0 - 0.5	N	11 J	134 J
	10/01/08	2 - 3	N	ND (10) J	28.2 J
	10/01/08	5 - 6	N	ND (10) J	10.9 J
	10/01/08	9 - 10	N	ND (10) J	ND (10) J
	10/01/08	14 - 15	N	ND (10) J	ND (10) J
	10/01/08	14 - 15	FD	ND (10) J	ND (10) J
AOC14-SS-3	10/02/08	0 - 0.5	N	30.4 J	172 J
	10/02/08	2 - 3	N	10 J	16.4 J
	10/02/08	5 - 6	N	10 J	24.7 J
	10/02/08	9 - 10	N	10 J	10 J
	10/02/08	14 - 15	N	10 J	10 J

TABLE 3-9e

Sample Results: Total Petroleum Hydrocarbons
AOC 14 – Railroad Debris Area
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PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC14-SS-4	10/02/08	0 - 0.5	N	10 J	14.3 J
	10/02/08	2 - 3	N	10 J	11.2 J
	10/02/08	5 - 6	N	10 J	10.1 J
	10/02/08	9 - 10	N	ND (10) J	ND (10) J
	10/02/08	14 - 15	N	ND (10) J	ND (10) J
	10/02/08	14 - 15	FD	10 J	10 J
S2-62	11/01/98 ß	3	N	ND (11)	2 J
S8-23	11/01/98 ß	3	N	15,000	17,000

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ϴ	white powder sample.
ß	black sandy material
Ύ	debris sample
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-9f
Sample Results: General Chemistry Parameters
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry							
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Residential Regional Screening Levels [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Alkalinity, total as CaCO3**	**Chloride**	**Nitrate**	**pH**	**Phosphate**	**Sulfate**
Category 1											
AOC14 White Powde	03/02/22 ⊖		N	---	---	---	---	---	9.2	---	---
AOC14 White Powde	03/02/22 ⊖		N	---	---	---	---	---	9.4	---	---
AOC14 White Powde	03/02/22 ⊖		N	---	---	---	---	---	8.5	---	---
AOC14-2	10/01/08 ⊖	3 - 3.25	N	---	---	---	---	---	8.88 J	---	---
AOC14-14E	02/18/16	0 - 1	N	---	---	---	---	---	9.1	---	---
	02/18/16	2 - 3	N	---	---	---	---	---	8.7	---	---
	02/18/16	2 - 3	FD	---	---	---	---	---	8.6	---	---
	02/18/16	5 - 5.5	N	---	---	---	---	---	8.6	---	---
	02/18/16	6 - 7	N	---	---	---	---	---	8.4	---	---
	02/18/16	9 - 10	N	---	---	---	---	---	8.4	---	---
AOC14-14W	02/16/16	0 - 1	N	---	---	---	---	---	9.2	---	---
	02/16/16	2 - 3	N	---	---	---	---	---	8.3	---	---
	02/16/16	5 - 5.5	N	---	---	---	---	---	8.7	---	---
	02/16/16	6 - 7	N	---	---	---	---	---	8.3	---	---
	02/16/16	9 - 10	N	---	---	---	---	---	8.2	---	---
AOC14-15	02/18/16	0 - 1	N	---	---	---	---	---	9	---	---
	02/18/16	2 - 3	N	---	---	---	---	---	8.9	---	---
	02/18/16	5 - 6	N	---	---	---	---	---	9.4	---	---
	02/18/16	7 - 8	N	---	---	---	---	---	8.7	---	---

TABLE 3-9f

Sample Results: General Chemistry Parameters
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry							
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Alkalinity, bicarb as CaCO3	Alkalinity, carb as CaCO3	Alkalinity, total as CaCO3	Chloride	Nitrate	pH	Phosphate	Sulfate
AOC14-16E	02/23/16	0 - 1	N	---	---	---	---	---	8.7	---	---
	02/23/16	2 - 3	N	---	---	---	---	---	8.3	---	---
	02/23/16	5 - 6	N	---	---	---	---	---	8	---	---
	02/23/16	9 - 10	N	---	---	---	---	---	9.3	---	---
AOC14-16W	02/22/16	0 - 1	N	---	---	---	---	---	8.4	---	---
	02/22/16	2 - 3	N	---	---	---	---	---	8.5	---	---
	02/22/16	5 - 6	N	---	---	---	---	---	8.8	---	---
	02/22/16	7 - 8	N	---	---	---	---	---	8.5	---	---
	02/22/16	9 - 10	N	---	---	---	---	---	8.4	---	---
	02/22/16	9 - 10	FD	---	---	---	---	---	8.6	---	---
AOC14-17E	02/24/16	9 - 10	N	---	---	---	---	---	8.5	---	---
AOC14-17W	02/24/16	0 - 1	N	---	---	---	---	---	8.8	---	---
	02/24/16	1 - 2	N	---	---	---	---	---	8	---	---
	02/24/16	2 - 3	N	---	---	---	---	---	8.7	---	---
	02/24/16	5 - 6	N	---	---	---	---	---	8.2	---	---
	02/24/16	9 - 10	N	---	---	---	---	---	7.8	---	---
AOC14-19	02/17/16	2 - 3	N	---	---	---	---	---	9.6	---	---
	02/17/16	3 - 4	N	---	---	---	---	---	9.5	---	---
S1-20	11/01/98	3	N	100	ND (10)	100	223	17	9.1	64.2	585
S2-6	11/01/98 ⊖	3	N	---	---	---	---	---	9.1	---	---
	11/01/98	5	N	---	---	---	---	---	9.2	---	---
S2-62	11/01/98 ⊖	2	N	---	---	---	---	---	8.8	---	---
	11/01/98	4	N	---	---	---	---	---	9.2	---	---

TABLE 3-9f

Sample Results: General Chemistry Parameters
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry							
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Alkalinity, total as CaCO3**	**Chloride**	**Nitrate**	**pH**	**Phosphate**	**Sulfate**
S2-130	11/01/98	1	N	---	---	---	---	---	9.9	---	---
S3-15	11/01/98	2	N	---	---	---	---	---	9.7	---	---
	11/01/98	4	N	---	---	---	---	---	9.5	---	---
S3-72	11/01/98 ⊖	1	N	---	---	---	---	---	9.1	---	---
	11/01/98	2	N	---	---	---	---	---	9.7	---	---
S3-120	11/01/98	1	N	---	---	---	---	---	8.8	---	---
S4-4	11/01/98 ⊖	4	N	220	344	560	3,010	29	9.24	10.7	1,630
	11/01/98	6	N	---	---	---	---	---	10.4	---	---
S4-95	11/01/98 ⊖	2	N	---	---	---	---	---	9.1	---	---
	11/01/98	3	N	---	---	---	---	---	10.3	---	---
S4-160	11/01/98	2	N	---	---	---	---	---	9.1	---	---
S8-30	11/01/98	3	N	---	---	---	---	---	9.2	---	---
GS-1	11/01/98 ⊖	0	N	---	---	---	---	---	8.81	---	---
GS-2	11/01/98 ⊖	0	N	---	---	---	---	---	8.14	---	---
RR-1	02/02/00	0	N	---	---	---	---	---	8.7	---	---
RR-2	02/02/00	0	N	---	---	---	---	---	9.64	---	---
RR-3	02/02/00	0	N	---	---	---	---	---	8.67	---	---
RR-4	02/02/00 ⊖	0	N	---	---	---	---	---	9.39	---	---
RR-5	02/02/00	0	N	---	---	---	---	---	9.03	---	---
RR-6	02/02/00	0	N	---	---	---	---	---	8.9	---	---
RR-7	02/02/00 ⊖	0	N	---	---	---	---	---	8.71	---	---
RR-8	02/02/00	0	N	---	---	---	---	---	9.06	---	---

TABLE 3-9f

Sample Results: General Chemistry Parameters
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry							
				(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(pH Units)	(mg/kg)	(mg/kg)
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Alkalinity, bicarb as CaCO3**	**Alkalinity, carb as CaCO3**	**Alkalinity, total as CaCO3**	**Chloride**	**Nitrate**	**pH**	**Phosphate**	**Sulfate**
RR-9	02/02/00 ϴ	0	N	---	---	---	---	---	9.08	---	---
RR-10	02/02/00	0	N	---	---	---	---	---	9.01	---	---
RR-11	02/02/00	0	N	---	---	---	---	---	9.15	---	---
RR-12	02/02/00 ϴ	0	N	---	---	---	---	---	8.94	---	---
Category 3											
AOC14-13	10/01/08 Y	0.5 - 1.5	N	---	---	---	---	---	8.85 J	---	---

TABLE 3-9f

Sample Results: General Chemistry Parameters
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ϴ	white powder sample.
Ƴ	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
µS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-9g
Sample Results: Pesticides
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1] :				2.1	2.1	2.1	39	86	440	300	300	5	470,000	470,000	470,000	19,000	19,000	19,000	300	440	130	70	320,000	490
Residential Regional Screening Levels [2] :				1,900	2,000	1,900	39	86	1,700	300	300	34	470,000	470,000	470,000	19,000	19,000	19,000	570	1,700	130	70	320,000	490
Residential DTSC-SL [3] :				NE	NE	NE	NE	300	440	300	300	NE	NE	NE	NE	NE	NE	NE	300	440	NE	NE	NE	NE
Ecological Comparison Values [4] :				2.1	2.1	2.1	NE	NE	470	NE	NE	5	NE	NE	NE	NE	NE	NE	NE	470	NE	NE	NE	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC14-1	09/30/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-2	09/30/08	0 - 0.5	N	ND (2)	2.9	3	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-3	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC14-4	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC14-5	10/02/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC14-7	10/02/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-8	10/02/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC14-10	10/01/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC14-14E	02/18/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	2 - 3	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	5 - 5.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	6 - 7	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-14W	02/16/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/16/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/16/16	5 - 5.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/16/16	6 - 7	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/16/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-15	02/18/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/18/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	02/18/16	7 - 8	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-16E	02/23/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/23/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/23/16	5 - 6	N	ND (2)	ND (2)	ND (2) J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2) J	ND (2) J	ND (2)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.1) J	ND (51) J
	02/23/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) J*	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1) J	ND (2.1) J	ND (2.1)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.2) J	ND (52) J
AOC14-16W	02/22/16	0 - 1	N	ND (2)	ND (2)	ND (2) J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1) J	ND (51) J
	02/22/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/22/16	5 - 6	N	ND (2.2) *	2.6	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J
	02/22/16	7 - 8	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/22/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/22/16	9 - 10	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-17E	02/24/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J

TABLE 3-9g

Sample Results: Pesticides
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
AOC14-17W	02/24/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/24/16	1 - 2	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/24/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/24/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/24/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC14-19	02/17/16	2 - 3	N	ND (2.1) *	4.4	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/17/16	3 - 4	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC14-20	04/26/17	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-9h
Sample Results: Polychlorinated Biphenyls
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC14-1	09/30/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-2	09/30/08	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-3	10/01/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-4	10/01/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-5	10/02/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-7	10/02/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-8	10/02/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-10	10/01/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC14-14E	02/18/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	5 - 5.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	6 - 7	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
AOC14-14W	02/16/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/16/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/16/16	5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	52	ND (17)	---	---	52
	02/16/16	6 - 7	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	33	ND (17)	---	---	33
	02/16/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
AOC14-15	02/18/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/18/16	7 - 8	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)

TABLE 3-9h
Sample Results: Polychlorinated Biphenyls
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC14-16E	02/23/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/23/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/23/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/23/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
AOC14-16W	02/22/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/22/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/22/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (9)
	02/22/16	7 - 8	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/22/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/22/16	9 - 10	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
AOC14-17E	02/24/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
AOC14-17W	02/24/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/24/16	1 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/24/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/24/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
	02/24/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)
AOC14-19	02/17/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	35	ND (17)	---	---	35
	02/17/16	3 - 4	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (8.5)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram

TABLE 3-9h

Sample Results: Polychlorinated Biphenyls
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-9i
Sample Results: Dioxins and Furans
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
Category 1																							
AOC14-14E	02/18/16	0 - 1	N	160 J	15	ND (1.4)	ND (1.3)	2.2 J	4.1 J	ND (0.81)	ND (2.2)	ND (0.2)	ND (0.22)	ND (0.47)	ND (20)	ND (0.64)	ND (0.16)	ND (0.21)	2,200	27	2.6	4.6	4.6
	02/18/16	2 - 3	N	510	30	2.7 J	ND (1.6)	ND (0.44)	8.6 J	ND (0.43)	3.5 J	ND (0.52)	0.9 J	ND (0.3)	ND (83)	ND (0.32)	ND (0.19)	ND (0.21)	5,900	94	7.4	14	14
	02/18/16	2 - 3	FD	380	35	ND (2.9)	ND (0.72)	ND (1.3)	9.1 J	ND (1.3)	3.5 J	ND (1.5)	ND (0.58)	ND (0.39)	ND (82)	0.39 J	ND (0.12)	ND (0.18)	5,000	100	6.9	12	12
	02/18/16	5 - 5.5	N	800	140	12 J	4.2 J	ND (4)	22	ND (3.9)	9.3 J	ND (4.6)	2.1 J	ND (0.34)	ND (260)	ND (1.3)	ND (0.13)	ND (0.15)	8,300	380	21	32	32
	02/18/16	6 - 7	N	72	9.1 J	ND (0.74)	ND (0.29)	ND (0.43)	1.5 J	ND (0.42)	0.69 J	ND (0.5)	0.16 J	ND (0.63)	ND (15)	ND (0.66)	ND (0.071)	ND (0.14)	880	34	1.8	2.5	2.5
	02/18/16	9 - 10	N	240	23	ND (1.8)	ND (0.7)	ND (0.21)	4.6 J	0.58 J	1.9 J	ND (0.24)	ND (0.42)	ND (0.19)	ND (38)	ND (0.2)	ND (0.049)	ND (0.16)	3,300	64	3.5	6.6	6.6
AOC14-14W	02/16/16	0 - 1	N	84	9.3 J	0.87 J	ND (0.74)	ND (0.12)	3 J	ND (0.38)	ND (1.6)	ND (0.14)	0.51 J	ND (0.31)	ND (22)	ND (0.35)	0.18 J	ND (0.24)	880	21 J	2.5	3.5	3.5
	02/16/16	2 - 3	N	15	3 J	ND (0.22)	ND (0.37)	0.37 J	ND (0.37)	ND (0.19)	ND (0.16)	ND (0.22)	ND (0.13)	ND (0.093)	ND (12)	ND (0.19)	ND (0.031)	0.2 J	150	8.2 J	1.1	1.1	1.1
	02/16/16	5 - 5.5	N	3,700	1,700	140	130	ND (350)	260	380	220	83	ND (110) *	210	640	490	20	ND (17)	16,000	740	780	480	480
	02/16/16	6 - 7	N	490	150	8.1 J	6.2 J	16	16	16	9.6 J	4.3 J	ND (5.6) *	9.8 J	19	18	1.4 J	ND (0.22)	4,900	120	33	27	27
	02/16/16	9 - 10	N	260	12 J	1.5 J	0.59 J	ND (0.59)	2.8 J	ND (0.58)	1.2 J	ND (0.69)	ND (0.44)	ND (0.51)	ND (26)	ND (0.76)	ND (0.13)	0.44 J	3,300	62	3.4	6	6
AOC14-15	02/18/16	0 - 1	N	94	16	1.4 J	ND (0.52)	ND (0.13)	3.1 J	ND (0.5)	ND (1.1)	ND (0.35)	ND (0.34)	ND (1.7)	ND (20)	ND (0.14)	ND (0.055)	ND (0.3)	740	49	2	3	3
	02/18/16	2 - 3	N	180	28	ND (1.4)	ND (1.1)	ND (0.21)	5.1 J	ND (0.59)	2 J	ND (0.25)	ND (0.76)	ND (0.22)	ND (44)	ND (0.23)	ND (0.14)	ND (0.17)	1,500	98	3.8	6.1	6.1
	02/18/16	5 - 6	N	140	19	1.5 J	ND (0.57)	ND (0.11)	3.9 J	ND (0.37)	2.1 J	ND (0.29)	ND (0.49)	ND (0.45)	ND (26)	ND (0.33)	ND (0.15)	ND (0.4)	1,500	57	2.8	4.4	4.4
	02/18/16	7 - 8	N	16	1.8 J	ND (0.18)	ND (0.12)	ND (0.27)	0.44 J	ND (0.13)	ND (0.14)	ND (0.15)	ND (0.12)	ND (0.062)	ND (3.6)	ND (0.11)	ND (0.039)	0.11 J	140	4.5 J	0.52	0.59	0.59
AOC14-16E	02/23/16	0 - 1	N	220	ND (0.099)	1.9 J	1.1 J	ND (0.32)	5.8 J	ND (5.6)	2.4 J	ND (0.38)	0.55 J	ND (0.32)	ND (66)	ND (0.29)	ND (0.022)	ND (0.24)	2,500	53	5.3	8.2	8.2
	02/23/16	2 - 3	N	140	ND (0.15)	ND (0.76)	ND (0.42)	ND (0.36)	2.5 J	ND (0.35)	1.3 J	ND (0.42)	ND (0.12)	ND (0.21)	ND (27)	ND (0.17)	ND (0.099)	ND (0.25)	1,400	20 J	2.2	3.8	3.8
	02/23/16	5 - 6	N	26	1.6 J	ND (0.27)	ND (0.13)	0.25 J	ND (0.69)	ND (0.082)	0.44 J	ND (0.061)	ND (0.067)	ND (0.051)	ND (15)	ND (0.054)	ND (0.022)	ND (0.16)	270	5 J	1.1	1.3	1.3
	02/23/16	9 - 10	N	3.8 J	0.29 J	ND (0.12)	ND (0.047)	ND (0.053)	ND (0.03)	ND (0.053)	ND (0.074)	ND (0.037)	ND (0.02)	ND (0.068)	ND (0.71)	ND (0.053)	ND (0.013)	ND (0.087)	30	ND (0.92)	0.15	0.13	0.13
AOC14-16W	02/22/16	0 - 1	N	5.6 J	0.9 J	ND (0.11)	ND (0.06)	ND (0.044)	ND (0.13)	ND (0.043)	0.16 J	ND (0.051)	ND (0.044)	ND (0.054)	ND (1)	ND (0.056)	ND (0.024)	0.16 J	52	2.2 J	0.32	0.22	0.22
	02/22/16	2 - 3	N	230	27	ND (2.6)	ND (4.5)	ND (5)	ND (4.5)	ND (4.9)	ND (4.3)	ND (5.9)	ND (3)	ND (1.4)	ND (21)	ND (1.5)	ND (1.5)	ND (1.2)	1,800	ND (42)	6.6	8.2	8.2
	02/22/16	5 - 6	N	44	ND (8.1)	ND (0.34)	ND (0.6)	ND (0.38)	ND (0.43)	ND (0.73)	ND (0.41)	ND (0.52)	ND (0.22)	ND (0.23)	ND (5.5)	ND (0.25)	ND (0.13)	ND (0.35)	370	9.8 J	1	1.3	1.3
	02/22/16	7 - 8	N	62	19	ND (0.98)	1.3 J	ND (0.48)	2 J	ND (0.94)	ND (0.83)	ND (0.56)	ND (0.39)	ND (0.19)	ND (10)	ND (0.41)	ND (0.1)	ND (0.3)	650	17 J	1.7	2.3	2.3
	02/22/16	9 - 10	N	ND (0.45)	ND (0.062)	ND (0.074)	ND (0.066)	ND (0.08)	ND (0.067)	ND (0.078)	ND (0.064)	ND (0.094)	ND (0.058)	ND (0.05)	ND (0.3)	ND (0.052)	ND (0.061)	ND (0.098)	3.2 J	ND (0.21)	0.17	0.11	0.11
	02/22/16	9 - 10	FD	ND (0.47)	ND (0.059)	ND (0.07)	ND (0.074)	ND (0.075)	ND (0.051)	ND (0.073)	ND (0.086)	ND (0.087)	ND (0.029)	ND (0.042)	ND (0.28)	ND (0.044)	ND (0.018)	ND (0.046)	4.7 J	ND (0.18)	0.1	0.074	0.074
AOC14-17E	02/24/16	9 - 10	N	0.23 J	0.088 J	ND (0.062)	ND (0.02)	ND (0.026)	ND (0.02)	ND (0.032)	ND (0.019)	ND (0.053)	ND (0.066)	ND (0.034)	ND (0.23)	ND (0.036)	ND (0.018)	ND (0.07)	1.9 J	ND (0.15)	0.12	0.075	0.075
AOC14-17W	02/24/16	0 - 1	N	14	1.7 J	ND (0.13)	ND (0.18)	ND (0.16)	ND (0.47)	ND (0.15)	ND (0.39)	ND (0.18)	ND (0.083)	ND (0.11)	ND (1.7)	ND (0.11)	ND (0.049)	ND (0.073)	110	2.9 J	0.34	0.44	0.44
	02/24/16	1 - 2	N	35	3.2 J	ND (0.3)	ND (0.43)	ND (0.14)	ND (1)	ND (0.12)	0.78 J	ND (0.046)	ND (0.24)	ND (0.12)	ND (3.4)	ND (0.12)	ND (0.049)	ND (0.043)	270	6.3 J	0.61	0.97	0.97
	02/24/16	2 - 3	N	14	ND (1)	ND (0.16)	ND (0.15)	ND (0.063)	ND (0.39)	ND (0.062)	ND (0.42)	ND (0.11)	ND (0.065)	ND (0.083)	ND (1.3)	ND (0.088)	ND (0.087)	ND (0.11)	120	2.4 J	0.31	0.4	0.4
	02/24/16	5 - 6	N	ND (0.44)	ND (0.16)	ND (0.071)	ND (0.029)	ND (0.049)	ND (0.03)	ND (0.058)	ND (0.028)	ND (0.055)	ND (0.029)	ND (0.059)	ND (0.041)	ND (0.062)	ND (0.086)	ND (0.19)	2 J	ND (0.089)	0.2	0.096	0.096
	02/24/16	9 - 10	N	ND (1.1)	ND (0.16)	ND (0.19)	ND (0.039)	ND (0.047)	ND (0.043)	ND (0.046)	ND (0.038)	ND (0.055)	ND (0.021)	ND (0.11)	ND (0.31)	ND (0.12)	ND (0.037)	0.2 J	6.1 J	ND (0.28)	0.32	0.11	0.11

TABLE 3-9i

Sample Results: Dioxins and Furans
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC14-19	02/17/16	2 - 3	N	610	390	23	29	110	60	110	52	ND (11)	ND (49) *	92	220	ND (190)	17	ND (5.8)	1,800	79	210	140	140
	02/17/16	3 - 4	N	15	ND (0.48)	ND (0.57)	ND (0.9)	ND (0.3)	ND (0.43)	ND (1.3)	ND (0.41)	ND (1.1)	ND (0.91)	ND (0.11)	ND (1)	ND (0.12)	ND (0.43)	ND (0.66)	43	ND (1.3)	1.3	1.2	1.2
AOC14-20	04/26/17	0 - 0.5	N	6.1 J	ND (0.79)	0.3 J	ND (0.19)	ND (0.21)	ND (0.49)	ND (0.27)	0.58 J	ND (0.22)	ND (0.089)	ND (0.2)	ND (1.1)	ND (0.2)	ND (0.042)	ND (0.045)	40	1.2 J	0.37	0.36	0.36
	04/26/17	2 - 3	N	3.6 J	ND (0.64)	ND (0.12)	ND (0.18)	ND (0.11)	ND (0.18)	ND (0.11)	ND (0.31)	ND (0.15)	ND (0.15)	ND (0.16)	ND (1.3)	ND (0.13)	ND (0.044)	ND (0.094)	22 J	1.1 J	0.33	0.29	0.29
	04/26/17	5 - 6	N	8.7 J	ND (0.73)	ND (0.14)	ND (0.14)	ND (0.18)	ND (0.073)	ND (0.18)	ND (0.28)	ND (0.076)	ND (0.1)	0.33 J	ND (1.5)	ND (0.17)	ND (0.056)	0.53 J	66	ND (1.4)	0.86	0.4	0.4
	04/26/17	8 - 9	N	ND (1.8)	ND (0.61)	ND (0.32)	ND (0.21)	ND (0.1)	ND (0.13)	ND (0.23)	ND (0.43)	ND (0.13)	ND (0.34)	ND (0.25)	ND (0.97)	ND (0.082)	ND (0.07)	ND (0.061)	15 J	ND (1.2)	0.4	0.35	0.35
AOC14-21	04/26/17	0 - 0.5	N	12 J	2.5 J	ND (0.25)	0.25 J	0.38 J	ND (0.88)	0.35 J	ND (0.61)	ND (0.11)	ND (0.45)	ND (0.19)	ND (3.1)	ND (0.26)	ND (0.1)	0.32 J	82	ND (3.7)	1.1	0.85	0.85
	04/26/17	2 - 3	N	60	8.5 J	ND (0.65)	0.63 J	ND (0.45)	2.5 J	ND (0.62)	ND (1.3)	ND (0.15)	0.57 J	0.35 J	ND (17)	ND (0.34)	ND (0.11)	ND (0.13)	620	23 J	2.1	2.9	2.9
	04/26/17	2 - 3	FD	89	8.6 J	0.69 J	0.5 J	0.48 J	2.9 J	0.75 J	1.2 J	ND (0.14)	ND (0.58)	0.47 J	ND (20)	ND (0.39)	ND (0.073)	ND (0.085)	780	23 J	2.2	3.2	3.2
	04/26/17	5 - 6	N	ND (1.3)	ND (0.25)	ND (0.094)	ND (0.12)	ND (0.067)	ND (0.14)	ND (0.17)	ND (0.14)	ND (0.1)	ND (0.15)	ND (0.053)	ND (0.43)	ND (0.053)	ND (0.064)	ND (0.047)	ND (10)	ND (0.43)	ND (0.21)	ND (0.19)	ND (0.19)
	04/26/17	9 - 10	N	4.1 J	ND (0.61)	ND (0.027)	ND (0.061)	ND (0.047)	ND (0.061)	ND (0.045)	ND (0.067)	ND (0.053)	ND (0.1)	ND (0.13)	ND (0.75)	ND (0.14)	ND (0.052)	ND (0.11)	39	1.8 J	0.27	0.22	0.22

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the Interim Screening Level are circled.

--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

TABLE 3-9i
Sample Results: Dioxins and Furans
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Calculations:
TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-9j

Sample Results: Asbestos
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Asbestos PLM/BULK [1]	Asbestos CARB435/ PLM (%) [2]	Asbestos TEM (%) [3]
Category 1						
AOC14-1	09/30/08	0 - 0.5	N	Present	---	ND (0.07)
	09/30/08	2 - 3	N	Not Present	---	---
	09/30/08	5 - 6	N	Not Present	---	---
	09/30/08	9 - 10	N	Not Present	---	---
	09/30/08	14 - 15	N	Not Present	---	---
AOC14-2	09/30/08	0 - 0.5	N	Present	ND (<0.1)	---
	09/30/08	2 - 3	N	Not Present	---	ND (0.07)
	10/01/08	3 - 3.25	N	Not Present	---	---
	09/30/08	5 - 6	N	Present	ND (<0.1)	---
	09/30/08	9 - 10	N	Not Present	---	ND (0.07)
	09/30/08	9 - 10	FD	Not Present	---	---
	09/30/08	14 - 15	N	---	<0.1	---
AOC14-3	10/01/08	0 - 0.5	N	Present	ND (<0.1)	---
	10/01/08	2 - 3	N	Present	ND (<0.1)	---
	10/01/08	5 - 6	N	Present	ND (<0.1)	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	14 - 15	N	Not Present	---	---
AOC14-4	10/01/08	0 - 0.5	N	Present	ND (<0.1)	---
	10/01/08	2 - 3	N	Not Present	---	---
	10/01/08	5 - 6	N	Not Present	---	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	9 - 10	FD	Not Present	---	---
	10/01/08	14 - 15	N	Not Present	---	---
AOC14-5	10/02/08	0 - 0.5	N	Not Present	---	---
	10/02/08	2 - 3	N	Present	ND (<0.1)	---
	10/02/08	5 - 6	N	Not Present	---	---
	10/02/08	9 - 10	N	Not Present	---	---
	10/02/08	14 - 15	N	Present	ND (<0.1)	---
AOC14-6	10/02/08	0 - 0.5	N	Not Present	---	---
	10/02/08	2 - 3	N	Not Present	---	---
	10/02/08	5 - 6	N	Not Present	---	---
	10/02/08	9 - 10	N	Not Present	---	---
	10/02/08	9 - 10	FD	Not Present	---	---
	10/02/08	14 - 15	N	Not Present	---	---

TABLE 3-9j
Sample Results: Asbestos
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Asbestos		
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**PLM/BULK** [1]	**CARB435/ [2] PLM (%)**	**TEM [3] (%)**
AOC14-7	10/02/08	0 - 0.5	N	Not Present	---	---
	10/02/08	2 - 3	N	Not Present	---	---
	10/02/08	5 - 6	N	Not Present	---	---
	10/02/08	9 - 10	N	Not Present	---	---
	10/02/08	14 - 15	N	Not Present	---	---
AOC14-8	10/02/08	0 - 0.5	N	Not Present	---	---
	10/02/08	2 - 3	N	Not Present	---	---
	10/02/08	5 - 6	N	Not Present	---	---
	10/02/08	9 - 10	N	Not Present	---	---
	10/02/08	9 - 10	FD	Not Present	---	---
	10/02/08	14 - 15	N	Not Present	---	---
AOC14-9	10/01/08	0 - 0.5	N	Not Present	---	---
	10/01/08	2 - 3	N	Present	---	ND (0.07)
	10/01/08	5 - 6	N	Not Present	---	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	14 - 15	N	Not Present	---	---
AOC14-10	10/01/08	0 - 0.5	N	Not Present	---	---
	10/01/08	2 - 3	N	Not Present	---	---
	10/01/08	5 - 6	N	Not Present	---	---
	10/01/08	5 - 6	FD	Not Present	---	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	14 - 15	N	Not Present	---	---
AOC14-11	10/01/08	5 - 6	N	Not Present	---	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	14 - 15	N	Not Present	---	---
AOC14-12	09/30/08	5 - 6	N	Present	ND (<0.1)	---
	09/30/08	9 - 10	N	Not Present	---	---
	09/30/08	14 - 15	N	Not Present	---	---
AOC14-13	09/30/08	5 - 6	N	Present	ND (<0.1)	---
	09/30/08	9 - 10	N	Not Present	---	---
	09/30/08	14 - 15	N	Not Present	---	---
	09/30/08	14 - 15	FD	Not Present	---	---
AOC14-SS-1	10/01/08	0 - 0.5	N	Present	ND (<0.1)	---
	10/01/08	2 - 3	N	Present	ND (<0.1)	---
	10/01/08	5 - 6	N	Present	<0.1	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	14 - 15	N	Not Present	---	---

TABLE 3-9j
Sample Results: Asbestos
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Asbestos PLM/BULK [1]	Asbestos CARB435/ [2] PLM (%)	Asbestos TEM [3] (%)
AOC14-SS-2	10/01/08	0 - 0.5	N	Not Present	---	---
	10/01/08	2 - 3	N	Not Present	---	---
	10/01/08	5 - 6	N	Not Present	---	---
	10/01/08	9 - 10	N	Not Present	---	---
	10/01/08	14 - 15	N	---	ND (<0.1)	---
	10/01/08	14 - 15	FD	---	ND (<0.1)	---
AOC14-SS-3	10/02/08	0 - 0.5	N	Not Present	---	---
	10/02/08	2 - 3	N	Not Present	---	---
	10/02/08	5 - 6	N	Not Present	---	---
	10/02/08	9 - 10	N	Not Present	---	---
	10/02/08	14 - 15	N	Not Present	---	---
AOC14-SS-4	10/02/08	0 - 0.5	N	Not Present	---	---
	10/02/08	2 - 3	N	Not Present	---	---
	10/02/08	5 - 6	N	Present	ND (<0.1)	---
	10/02/08	9 - 10	N	Not Present	---	---
	10/02/08	14 - 15	N	Not Present	---	---
	10/02/08	14 - 15	FD	Not Present	---	---
Category 3						
AOC14-13	10/01/08	0.5 - 1.5	N	25	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Θ	white powder sample.
Y	debris sample
---	not analyzed
ft bgs	feet below ground surface
FD	field duplicate
N	primary sample

1 Polarized light microscopy of bulk samples
2 California Air Resource Board Method 435 / polarized light microscopy of bulk samples
3 Transmission electron microscopy

TABLE 3-9k

Constituent Concentrations in Soil Compared to Screening Values
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	10	38 / 39 (97%)	780	6	(5.98)	4	(16)	NA	(NE)	NA	(NA)	NA	(NE)	4	(16)
TEQ Human	ng/kg	10	38 / 39 (97%)	480	10	(5.58)	NA	(NE)	2	(50)	NA	(NA)	1	(220)	2	(50)
TEQ Mammals	ng/kg	10	38 / 39 (97%)	480	10	(5.58)	10	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	10	(5.58)
Metals																
Antimony	mg/kg	28	2 / 121 (1.7%)	19	NA	(NE)	2	(0.285)	0	(31)	NA	(NA)	0	(470)	2	(0.285)
Arsenic	mg/kg	28	118 / 121 (98%)	19	2	(11)	2	(11.4)	2	(0.11) *	NA	(NA)	2	(0.36) *	2	(11)
Barium	mg/kg	28	121 / 121 (100%)	410	0	(410)	0	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	0	(410)
Beryllium	mg/kg	28	0 / 121 (0%)	ND (11) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	28	5 / 121 (4.1%)	7.1	5	(1.1)	5	(0.0151) *	1	(5.2)	NA	(NA)	0	(7.3)	5	(1.1)
Chromium, Hexavalent	mg/kg	47	26 / 141 (18%)	20	13	(0.83)	0	(139.6)	13	(0.3)	NA	(NA)	2	(6.3)	13	(0.83)
Chromium, Hexavalent-SPLP	mg/L	1	1 / 1 (100%)	0.0436	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Chromium, total	mg/kg	47	141 / 141 (100%)	420	9	(39.8)	9	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	9	(39.8)
Chromium-SPLP	mg/L	1	1 / 1 (100%)	0.0425	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	NA	(NE)
Cobalt	mg/kg	28	119 / 121 (98%)	17	1	(12.7)	1	(13)	0	(23)	NA	(NA)	0	(350)	1	(12.7)
Copper	mg/kg	47	139 / 141 (99%)	1,800	12	(16.8)	8	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	12	(16.8)
Lead	mg/kg	28	121 / 121 (100%)	1,600	21	(8.39)	21	(0.0166) *	3	(80)	NA	(NA)	1	(320)	21	(8.39)
Mercury	mg/kg	28	6 / 121 (5.0%)	180	NA	(NE)	6	(0.0125)	3	(1)	NA	(NA)	3	(4.5)	6	(0.0125)
Molybdenum	mg/kg	28	21 / 121 (17%)	63	16	(1.37)	9	(2.25)	0	(390)	NA	(NA)	0	(5,800)	16	(1.37)
Nickel	mg/kg	47	141 / 141 (100%)	270	2	(27.3)	2	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	2	(27.3)
Selenium	mg/kg	28	3 / 121 (2.5%)	1.6	2	(1.47)	2	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	2	(1.47)
Silver	mg/kg	28	0 / 121 (0%)	ND (11) ‡	NA	(NE)	0	(5.15)	0	(390)	NA	(NA)	0	(1,500)	0	(5.15)
Thallium	mg/kg	28	7 / 121 (5.8%)	2.6	NA	(NE)	1	(2.32)	7	(0.78)	NA	(NA)	0	(12)	7	(0.78)
Vanadium	mg/kg	28	121 / 121 (100%)	58	1	(52.2)	1	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	1	(52.2)
Zinc	mg/kg	47	141 / 141 (100%)	2,000	9	(58)	9	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	9	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	9	9 / 9 (100%)	9,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	10	10 / 10 (100%)	48,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	10	10 / 10 (100%)	23,100	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	10	10 / 10 (100%)	8,500	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	9	9 / 9 (100%)	290	0	(402)	0	(220)	0	(1,800)	NA	(NA)	0	(6,900)	0	(402)
Potassium	mg/kg	10	10 / 10 (100%)	2,800	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	10	9 / 10 (90%)	850	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	9	0 / 9 (0%)	ND (1.02) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Semivolatile Organic Compounds																
2,4-Dinitrophenol	µg/kg	26	1 / 111 (0.9%)	1,700	NA	(NE)	NA	(NE)	0	(130,000)	NA	(NA)	0	(1,600,000)	0	(130,000)
4,6-Dinitro-2-methylphenol	µg/kg	26	1 / 111 (0.9%)	1,700	NA	(NE)	NA	(NE)	0	(5,100)	NA	(NA)	0	(66,000)	0	(5,100)
4-Methylphenol	µg/kg	26	1 / 111 (0.9%)	430	NA	(NE)	0	(500)	0	(6,300,000)	NA	(NA)	0	(82,000,000)	0	(500)
Benzoic acid	µg/kg	26	1 / 111 (0.9%)	1,700	NA	(NE)	NA	(NE)	0	(250,000,000)	NA	(NA)	0	(3,300,000,000)	0	(250,000,000)
bis (2-ethylhexyl) phthalate	µg/kg	26	1 / 111 (0.9%)	640	NA	(NE)	0	(2,870)	0	(39,000)	NA	(NA)	0	(160,000)	0	(2,870)
Butylbenzylphthalate	µg/kg	26	1 / 111 (0.9%)	630	NA	(NE)	NA	(NE)	0	(290,000)	NA	(NA)	0	(1,200,000)	0	(290,000)

TABLE 3-9k

Constituent Concentrations in Soil Compared to Screening Values
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Volatile Organic Compounds																
Hexachlorocyclopentadiene	µg/kg	9	1 / 9 (11%)	660	NA	(NE)	NA	(NE)	0	(1,800)	NA	(NA)	0	(7,500)	0	(1,800)
Polycyclic Aromatic Hydrocarbons																
Acenaphthylene	µg/kg	26	1 / 111 (0.9%)	6.8	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	26	2 / 111 (1.8%)	22	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Benzo (a) anthracene	µg/kg	26	12 / 111 (11%)	1,000	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	26	11 / 111 (9.9%)	550	NA	(NE)	NA	(NE)	1	(110)	NA	(NA)	0	(2,100)	1	(110)
Benzo (b) fluoranthene	µg/kg	26	16 / 111 (14%)	840	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (ghi) perylene	µg/kg	26	13 / 111 (12%)	40	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	26	13 / 111 (12%)	360	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	26	19 / 111 (17%)	1,100	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	26	2 / 111 (1.8%)	17	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Fluoranthene	µg/kg	26	18 / 111 (16%)	2,100	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	26	11 / 111 (9.9%)	39	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Phenanthrene	µg/kg	26	7 / 111 (6.3%)	380	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	26	18 / 111 (16%)	2,100	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	26	111 / 111 (100%)	380	2	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	26	111 / 111 (100%)	8,068	3	(267.4)	2	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	2	(1,160)
B(a)P Equivalent	µg/kg	26	22 / 111 (20%)	740	4	(55)	NA	(NE)	2	(110)	NA	(NA)	0	(2,100)	2	(110)
Polychlorinated biphenyls																
Aroclor 1254	µg/kg	16	3 / 39 (7.7%)	52	NA	(NE)	NA	(NE)	0	(240)	NA	(NA)	0	(970)	0	(240)
Total PCBs	µg/kg	16	3 / 39 (7.7%)	52	NA	(NE)	0	(204)	0	(230)	NA	(NA)	0	(940)	0	(204)
Pesticides																
4,4-DDE	µg/kg	17	3 / 40 (7.5%)	4.4	NA	(NE)	3	(2.1)	0	(2,000)	NA	(NA)	0	(9,300)	3	(2.1)
4,4-DDT	µg/kg	17	1 / 40 (2.5%)	3	NA	(NE)	1	(2.1)	0	(1,900)	NA	(NA)	0	(8,500)	1	(2.1)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	25	23 / 110 (21%)	630	NA	(NE)	NA	(NE)	1	(230)	1	(230)	0	(1,100)	1	(230)
TPH as motor oil	mg/kg	25	49 / 110 (45%)	4,500	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-9k

Constituent Concentrations in Soil Compared to Screening Values
AOC 14 – Railroad Debris Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. "San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final." Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-10a

Sample Results: Metals
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
24soil-01	01/31/08	2.5 - 3	N	ND (0.4) *	3.1	130	ND (0.1)	0.71	ND (0.4)	15	3.5	7.2	6.4	ND (0.1) *	0.63	6.8	6.2	ND (0.25)	ND (1) *	17	16
24soil-02	01/31/08	2.5 - 3	N	ND (0.4) *	2.9	89	ND (0.1)	0.3	ND (0.4)	15	3.4	9.1	8.7	ND (0.1) *	0.7	7.2	1.4	ND (0.25)	ND (1) *	18	17
AOC27-1	03/18/16	0 - 1	N	ND (2.1) *	3.1	130	ND (1) *	ND (1)	0.35	17	5.8	11	28	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2.1) *	27	37
	03/18/16	2 - 3	N	ND (2) *	4	160	ND (1) *	ND (1)	ND (0.2)	11	6.3	12	5.4	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	28	31
	03/18/16	5 - 6	N	ND (2) *	2	90	ND (1) *	ND (1)	ND (0.2)	17	6.7	11	2.9	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	31	31
	03/18/16	9 - 10	N	ND (2) *	1.2	98	ND (1) *	ND (1)	ND (0.2)	13	7.2	8.6	1.9	ND (0.1) *	ND (1)	8.7	ND (1)	ND (1)	ND (2) *	32	29
AOC27-18	03/17/16	0 - 1	N	ND (2) *	2.6	110	ND (1) *	ND (1)	0.3	15	4.1	8.3	5.7	ND (0.1) *	ND (1)	7.3	ND (1)	ND (1)	ND (2) *	22	26
	03/17/16	2 - 3	N	ND (2.1) *	3.1	91	ND (1) *	ND (1)	0.36	22	5.4	9.7	8.4	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	24	31
	03/17/16	5 - 6	N	ND (2.1) *	2.5	100	ND (1) *	ND (1)	ND (0.21)	11	4.1	7.4	6.9	ND (0.1) *	ND (1)	7.7	ND (1)	ND (1)	ND (2.1) *	19	27
	03/17/16	9 - 10	N	ND (2.1) *	2.5	81	ND (1) *	ND (1)	1.2	22	3.2	6.8	7.1	ND (0.1) *	ND (1)	5.4	ND (1)	ND (1)	ND (2.1) *	17	47
AOC27-18E	03/17/16	4 - 5	N	ND (2) *	2.7	110	ND (1) *	1.8	ND (0.2)	11	3.9	6.6	10	ND (0.1) *	ND (1)	6.7	ND (1)	ND (1)	ND (2) *	18	250
AOC27-2	03/18/16	0 - 1	N	ND (2) *	4.2	100	ND (1) *	ND (1)	0.2	13	3.2	5.6	3.8	ND (0.1) *	ND (1)	5.2	ND (1)	ND (1)	ND (2) *	19	24
	03/18/16	2 - 3	N	ND (2) *	5.3	150	ND (1) *	ND (1)	0.28	16	3.9	8.1	5.7	ND (0.1) *	ND (1)	5.7	ND (1)	ND (1)	ND (2) *	23	24
	03/18/16	5 - 6	N	ND (2) *	3.5	160	ND (1) *	ND (1)	ND (0.2)	11	5.2	8.5	4.9	ND (0.1) *	ND (1)	7.9	ND (1)	ND (1)	ND (2) *	24	30
	03/18/16	9 - 10	N	ND (2) *	2.1	96	ND (1) *	ND (1)	ND (0.2)	14	6.6	9.3	3.3	ND (0.1) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	32	32
AOC27-20	03/01/16	0 - 1	N	ND (2) *	1.9	84	ND (1) *	ND (1)	ND (0.2)	17	7.2	9.2	8.4	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	27	38
	03/01/16	2 - 3	N	ND (2.1) *	3.2	70 J	ND (1) *	ND (1)	ND (0.21)	19	8.8	11	4.6	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	31	42
	03/01/16	2 - 3	FD	ND (2.1) *	3.2	51 J	ND (1.1) *	ND (1.1) *	ND (0.21)	18	8.3	9.7	3.6	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	32	42
	03/01/16	5 - 6	N	ND (2.1) *	2.4	65	ND (1) *	ND (1)	0.29	20	7.2	27	15	0.13	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	27	74
	03/01/16	9 - 10	N	ND (2.1) *	3.5	32	ND (1) *	ND (1)	ND (0.21)	20	9.5	11	2.7	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	38	41
AOC27-24	03/18/16	0 - 1	N	ND (2) *	3.9	180	ND (1) *	ND (1)	0.36	29	6.2	12	6.2	ND (0.1) *	ND (1)	9.2	ND (1)	ND (1)	ND (2) *	31	37
	03/18/16	2 - 3	N	ND (2) *	2.6	150	ND (1) *	ND (1)	ND (0.2)	19	6.6	9.4	3.6	ND (0.1) *	ND (1)	9.8	ND (1)	ND (1)	ND (2) *	33	33
	03/18/16	5 - 6	N	ND (2) *	2.6	120	ND (1) *	ND (1)	ND (0.2)	14	6.5	11	4.1	ND (0.1) *	ND (1)	9.2	ND (1)	ND (1)	ND (2) *	30	30
	03/18/16	9 - 10	N	ND (2) *	2	130	ND (1) *	ND (1)	ND (0.2)	20	7.5	14	3	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	34	34
AOC27-24SW	03/18/16	0 - 1	N	ND (2) *	3.2	150	ND (1) *	ND (1)	ND (0.2)	15	6.9	13	4.3	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	31	32
	03/18/16	2 - 3	N	ND (2) *	4.4	170	ND (1) *	ND (1)	0.34	17	5.4	8.9	7	ND (0.1) *	ND (1)	8.1	ND (1)	ND (1)	ND (2) *	25	29
	03/18/16	5 - 6	N	ND (2) *	1.8	100	ND (1) *	ND (1)	ND (0.2)	20	7.6	11	2.9	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	29	33
	03/18/16	9 - 10	N	ND (2) *	1.2	97	ND (1) *	ND (1)	ND (0.2)	12	7	9.3	1.9	ND (0.1) *	ND (1)	8.4	ND (1)	ND (1)	ND (2) *	32	29
AOC27-27	03/02/16	0 - 1	N	ND (2) *	3.3	100	ND (1) *	ND (1)	ND (0.2)	22	6.4	11	5.5	0.12	ND (1)	11	ND (1)	ND (1)	ND (2) *	34	38
	03/02/16	2 - 3	N	ND (2.1) *	2.6	100	ND (1) *	ND (1)	ND (0.21)	16	7.6	8.2	3.8	0.1	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	36	38
AOC27-36	03/17/16	0 - 1	N	ND (2.1) J*	4.6	150 J	ND (1) *	ND (1)	ND (0.21)	14	5.4	11	6	ND (0.1) *	ND (1)	11	ND (1) J	ND (1)	ND (2.1) *	25	59 J
	03/17/16	2 - 3	N	ND (2.1) *	4.4	210	ND (1) *	ND (1)	ND (0.21)	14	3.9	7	4.3	ND (0.11) *	ND (1)	7	ND (1)	ND (1)	ND (2.1) *	21	24
	03/17/16	5 - 6	N	ND (2.2) *	2.8	100	ND (1.1) *	ND (1.1) *	ND (0.22)	16	6.1	8.8	3.7	ND (0.11) *	ND (1.1)	9.8	ND (1.1)	ND (1.1)	ND (2.2) *	29	29
	03/17/16	9.6 - 10	N	ND (2.2) *	5.2	81	ND (1.1) *	ND (1.1) *	ND (0.22)	13	5.6	11	6.5	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2) *	27	34

TABLE 3-10a

Sample Results: Metals
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC27-4	03/17/16	0 - 1	N	ND (2) *	2.8	110 J	ND (1) *	ND (1)	0.23	16	4	7.5	7.3	ND (0.1) *	ND (1)	7.2	ND (1)	ND (1)	ND (2) *	21	31
	03/17/16	0 - 1	FD	ND (2) *	3.2	150 J	ND (1) *	ND (1)	0.28	16	4.8	8.9	6.6	ND (0.1) *	ND (1)	6.9	ND (1)	ND (1)	ND (2) *	25	31
	03/17/16	2 - 3	N	ND (2) *	4	180	ND (1) *	ND (1)	ND (0.2)	13	5.7	9.5	5.9	ND (0.1) *	ND (1)	8.1	ND (1)	ND (1)	ND (2) *	25	27
	03/17/16	5 - 6	N	ND (2) *	1.1	76	ND (1) *	ND (1)	ND (0.2)	14	7.1	8.1	2	ND (0.099) *	ND (1)	9.1	ND (1)	ND (1)	ND (2) *	36	28
AOC27-5	03/17/16	0 - 1	N	ND (2) *	3.4	110	ND (1) *	ND (1)	0.31	15	3.7	7.6	7	ND (0.1) *	ND (1)	7.2	ND (1)	ND (1)	ND (2) *	19	48
	03/17/16	2 - 3	N	ND (2) *	4.1	120	ND (1) *	1.5	0.48	21	4.7	14	38	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	24	500
	03/17/16	5 - 6	N	ND (2) *	1.3	82	ND (1) *	ND (1)	ND (0.2)	15	6.9	9.2	2.4	ND (0.099) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	34	32
	03/17/16	9 - 10	N	ND (2) *	1.6	93	ND (1) *	ND (1)	ND (0.2)	13	6.3	8.6	2.5	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	30	33
AOC27-50	03/02/16	0 - 1	N	ND (2) *	2.1	180	ND (1) *	ND (1)	0.3	25	8.3	25	73	0.13	ND (1)	13	ND (1)	ND (1)	ND (2) *	38	250
	03/02/16	2 - 3	N	ND (2.1) J*	4.4	190	ND (1) *	1.1	1.3	50 J	7.6	100 J	190 J	0.47	4.7 J	16	ND (1) J	ND (1.7)	ND (2.1) J*	26 J	330 J
	03/02/16	5 - 6	N	ND (2.1) *	2.1	62	ND (1) *	ND (1)	ND (0.21)	18	8	7.9	2.1	0.13	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	29	39
	03/02/16	9 - 10	N	ND (2.1) *	2.1	36	ND (1) *	ND (1)	ND (0.21)	18	7.7	9.1	2.1	0.12	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	31	38
AOC27-51	02/17/17	0 - 0.5	N	ND (2.1) *	2.3	130	ND (1) *	2.3	ND (0.21)	20	7.7	36	19	ND (0.1) *	ND (1)	15	ND (1) J	ND (1)	ND (2.1) J*	22	1,200
	02/17/17	2 - 3	N	ND (2) *	ND (1)	68	ND (1) *	ND (1)	ND (0.2)	10	5	7.4	1.4	ND (0.1) *	ND (1)	6.9	ND (1) J	ND (1)	ND (2) J*	18	28
	02/17/17	5 - 6	N	ND (2) *	1.4	97	ND (1) *	1.2	ND (0.2)	13	6.3	8.3	ND (1)	ND (0.1) *	ND (1)	8.2	ND (1) J	ND (1)	ND (2) J*	24	30
AOC27-6	02/29/16	0 - 1	N	ND (2.1) *	5.2	200	ND (1.1) *	1.5	0.87 J	43	6.7	500	630	0.51	8.3	22	ND (1.1)	ND (1.1)	ND (2.1) *	23	700
	02/29/16	2 - 3	N	ND (2.1) *	3.4	120	ND (1) *	ND (1)	4.8	24	6.9	76	37	0.26	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	26	130
	02/29/16	5 - 6	N	ND (2.1) *	2.7	70	ND (1) *	ND (1)	ND (0.21)	39	8.6	18	51	0.14	ND (1)	26	ND (1)	ND (1)	ND (2.1) *	33	92
AOC27-7	02/29/16	0 - 1	N	ND (2) *	5.7	190	ND (1) *	1.7	2.7	150	11	580	170	0.32	11	35	ND (1)	ND (1)	ND (2) *	27	420
	02/29/16	2 - 3	N	3.5	20	180	ND (1.1) *	4.5	4	290	16	1,000	570	0.95	26	97	ND (1.1)	ND (1.1)	ND (2.3) *	17	1,300
	03/01/16	5 - 6	N	ND (2) *	2.6	28	ND (1) *	ND (1)	0.5	16	7.7	9.8	2.6	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	29	38
AOC27-8	03/01/16	1 - 2	N	ND (2) *	2	130	ND (1) *	ND (1)	0.49	20	7	29	24	0.17	ND (1)	11	ND (1)	ND (1)	ND (2) *	28	93
	03/01/16	5 - 6	N	ND (2) *	2.5	39	ND (1) *	ND (1)	ND (0.2)	17	7.3	15	6.1	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	30	45
AOC27-9	03/08/16	0 - 1	N	ND (2) J*	2.2	140	ND (1) *	ND (1)	ND (0.2)	13	5.9	8.2	2.5	ND (0.1) *	ND (1)	9.2	ND (1) J	ND (1)	ND (2) *	25	30 J
	03/08/16	0 - 1	FD	ND (2) J*	2.9	140	ND (1) *	ND (1)	ND (0.2)	14	5.8	14	5.9	ND (0.1) *	ND (1)	9.7	ND (1) J	ND (1)	ND (2) *	25	38 J
	03/08/16	2 - 3	N	ND (2) *	2.1	120	ND (1) *	ND (1)	ND (0.2)	14	5.7	8.3	3.7	ND (0.1) *	ND (1)	9.3	ND (1)	ND (1)	ND (2) *	25	35
	03/08/16	5 - 6	N	ND (2) *	2.1	120	ND (1) *	ND (1)	ND (0.2)	15	6.7	11	2.7	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	33	36
	03/08/16	9 - 10	N	ND (2) *	1.2	88	ND (1) *	ND (1)	ND (0.2)	11	5.8	7.8	1.6	ND (0.1) *	ND (1)	7.9	ND (1)	ND (1)	ND (2) *	28	28
PA-13	01/27/16	0 - 1	N	ND (2.1) *	4.8	200	ND (1) *	ND (1)	0.26	15	6.3	12	5.8	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	27	45
Category 3																					
24debris-01	01/18/08 [Ю]	Unknown	N	1.3	4.1	89	ND (0.1)	0.49	0.43	9.6	2.9	17	66	ND (0.1) *	0.42	7.3	8	ND (0.25)	ND (1) *	16	26
24debris-02	01/18/08 [Ж]	Unknown	N	3.8	0.89	43	ND (0.1)	ND (0.1)	ND (0.4)	190	0.7	3.9	830	ND (0.1) *	0.56	1.4	8.9	ND (0.25)	ND (1) *	1.9	170
24debris-03	01/18/08 [Ψ]	0	N	ND (0.4) *	4.6	45	ND (0.1)	0.74	ND (0.4)	16	2.7	5.1	20	ND (0.1) *	1.5	100	6.6	ND (0.25)	ND (1) *	120	41

TABLE 3-10a

Sample Results: Metals
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ψ	tar sample
Ж	wood sample
Ю	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-10b

Sample Results: Contract Laboratory Program Inorganics
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Interim Screening Level[1] :	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
			Residential Regional Screening Levels[2] :	**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
			Residential DTSC-SL[3] :	**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
			Ecological Comparison Values[4] :	**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
			Background[5] :	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC27-51	02/17/17	0 - 0.5	N	8,100	21,000	28,000	6,200	310	2,900	460	ND (0.207)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-10c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
Category 1																								
24soil-01	01/31/08	2.5 - 3	N	---	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330) *	ND (330)	ND (330)	ND (330)	ND (330)	ND (330) *	ND (330)	ND (330)	ND (330)	ND (330)	450	ND (330)	450	ND	380
24soil-02	01/31/08	2.5 - 3	N	---	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330) *	ND (330)	ND (330)	ND (330)	ND (330)	ND (330) *	370	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND	370	380
AOC27-1	03/18/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	12	19	82	14	39	52 J	ND (5.3)	38	ND (5.3)	16	ND (5.3)	ND (5.3)	33	ND	305	33
	03/18/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/18/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (3.7)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/18/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC27-18	03/17/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12 J	ND (5.1) J	ND (5.1)	6.8	ND (5.1) J	5.4	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	6.1	ND	30.3	6.8
	03/17/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/17/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/17/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	6.9 J	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	ND (5.2)	ND (5.2)	ND	6.9	6.4
AOC27-18E	03/17/16	4 - 5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	5.1 J	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
AOC27-2	03/18/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/18/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	26	65	15	32	30 J	ND (5.1)	ND (5.1)	ND (5.1)	13	ND (5.1)	ND (5.1)	5.4	ND	197.4	38
	03/18/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/18/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC27-20	03/01/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.4	5.4	14	ND (5.1)	ND (5.1)	8.1	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	ND	57.9	10
	03/01/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/01/16	2 - 3	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
	03/01/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND	12.5	6.5
	03/01/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC27-24	03/18/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.5 J	ND (5.1)	8.5 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	17	6.5
	03/18/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	17 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	17	7.3
	03/18/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.4	6.2
	03/18/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	25	28	16	16	8.5	ND (5.1)	5.1	ND (5.1)	13	ND (5.1)	ND (5.1)	5.1	ND	121.8	32
AOC27-24SW	03/18/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/18/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	18 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND	30.5	7.4
	03/18/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4 J	ND (5.1)	7.8 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	13.2	6.2
	03/18/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC27-27	03/02/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	14	ND (5.1)	ND (5.1)	10	ND (5.1)	16	ND (5.1)	ND (5.1)	ND (5.1)	5.4	14	5.4	60.1	11
	03/02/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC27-36	03/17/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	8.2	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	13.3	6.5
	03/17/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2) J	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	5.2	6.3
	03/17/16	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4) J	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	03/17/16	9.6 - 10	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5) J	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND	ND	ND (6.4)

TABLE 3-10c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
			Residential Regional Screening Levels [2] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC27-4	03/17/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	10	49	5.4 J	17	24	ND (5.1) J	21	ND (5.1)	5.1 J	ND (5.1)	ND (5.1)	20	ND	157.3	19
	03/17/16	0 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	11	12	66	12	22	36 J	ND (5.1)	25	ND (5.1)	12	ND (5.1)	ND (5.1)	24	6.8	220	24
	03/17/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	10	5.1	8.4	8.1 J	ND (5.1)	9.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	ND	51.7	6.7
	03/17/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
AOC27-5	03/17/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	6.1 J	16 J	65 J	14 J	20 J	30 J	ND (5.1) J	9.9	ND (5.1)	8.5 J	ND (5.1)	ND (5.1)	9.5	14	179	27
	03/17/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	5.1	22	26 J	58 J	190 J	22 J	68 J	89 J	ND (5.1) J	20	ND (5.1)	16 J	ND (5.1)	5.1	21	32.2	510	85
	03/17/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	03/17/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	8.7	ND (5)	ND (5)	8.1	ND (5)	15	ND (5)	ND (5)	5.3	16	13	5.3	44.8	6.4
AOC27-50	03/02/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	39	440	270	540	79	160	480	20	1,100	ND (5.1)	81	ND (5.1)	420	870	459	4,040	400
	03/02/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.2 J	1,300	930 J	2,100 J	130	830 J	1,200	ND (5.1)	2,800	ND (5.1)	95	ND (5.1)	770	2,300	779.2	11,685	1,300
	03/02/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/02/16	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC27-51	02/17/17	0 - 0.5	N	ND (5.2)	ND (5.2)	8.3	ND (5.2)	55	490 J	250 J	560	140 J	130 J	410 J	ND (5.2)	920	ND (5.2)	140 J	ND (5.2)	480 J	740	543.3	3,780	370
	02/17/17	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	02/17/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC27-6	02/29/16	0 - 1	N	ND (5.3)	ND (5.3)	51 J	ND (5.3)	710 J	3,400 J	2,000 J	3,400 J	1,500 J	1,300 J	3,000 J	530 J	8,600 J	9.2 J	1,200 J	6.4 J	3,100 J	6,600 J	3,877	31,530	3,300
	02/29/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	560	930 J	1,800 J	22	660 J	580	6.9	660	ND (5.2)	19	ND (5.2)	34	590	40.9	5,828	1,200
	02/29/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.3	13	24	6.9	7.2	10	ND (5.1)	12	ND (5.1)	5.5	ND (5.1)	ND (5.1)	11	ND	98.9	20
AOC27-7	02/29/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	430	340 J	740 J	25 J	410 J	400	ND (5.1)	540	ND (5.1)	24 J	ND (5.1)	25	480	25	3,389	470
	02/29/16	2 - 3	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	94 J	ND (57)	260 J	ND (57)	94	100 J	ND (57)	100 J	ND (5.7)	ND (57)	ND (5.7)	60 J	88 J	60	736	96
	03/01/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC27-8	03/01/16	1 - 2	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	28	30	47	16	17	31	ND (5.1)	33	ND (5.1)	13	ND (5.1)	9.2	35	9.2	250	42
	03/01/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC27-9	03/08/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
	03/08/16	0 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.5	ND (5.1)	ND (5.1)	6.1	ND (5.1)	6.5	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	ND	27.2	6.4
	03/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/08/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	03/08/16	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
PA-13	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	90	ND (52)	ND (52)	52	ND (52)	56 J	ND (5.2)	ND (52)	ND (5.2)	23 J	43 J	23	241	67
Category 3																								
24debris-01	01/18/08 Ю	Unknown	N	---	ND (3,300)	ND (3,300)	ND (3,300)	ND (3,300)	ND (3,300) *	ND (3,300) *	ND (3,300) *	ND (3,300)	ND (3,300)	ND (3,300)	ND (3,300) *	ND (3,300)	ND (3,300)	ND (3,300) *	ND (3,300)	ND (3,300)	ND (3,300)	ND	ND	ND (3,800) *
24debris-02	01/18/08 Ж	Unknown	N	---	ND (3,300)	ND (3,300)	ND (3,300)	ND (3,300)	ND (3,300) *	ND (3,300) *	ND (3,300) *	ND (3,300)	ND (3,300)	ND (3,300)	ND (3,300) *	ND (3,300)	ND (3,300)	ND (3,300) *	ND (3,300)	ND (3,300)	ND (3,300)	ND	ND	ND (3,800) *
24debris-03	01/18/08 Ψ	0	N		ND (160,000)	ND (160,000)	ND (160,000)	ND (160,000)	ND (160,000) *	ND (160,000) *	ND (160,000) *	ND (160,000)	ND (160,000) *	ND (160,000) *	ND (160,000) *	ND (160,000)	ND (160,000)	ND (160,000) *	ND (160,000) *	ND (160,000)	ND (160,000)		ND	180,000

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

ψ	tar sample
ж	wood sample
ю	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-10d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	**6,800**	**110,000**
			Residential Regional Screening Levels [2]:	**6,800**	**110,000**
			Residential DTSC-SL [3]:	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**
			Background [5]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Bromomethane**	**Chloro methane**
Category 1					
AOC27-1	03/18/16	2 - 3	N	26	11
	03/18/16	5 - 6	N	11	5.3
	03/18/16	9 - 10	N	ND (6.3)	ND (6.3)
AOC27-18	03/17/16	2 - 3	N	ND (6.2)	ND (6.2) J
	03/17/16	5 - 6	N	ND (8.1)	ND (8.1) J
	03/17/16	9 - 10	N	ND (6)	ND (6) J
AOC27-18E	03/17/16	4 - 5	N	ND (5.6)	ND (5.6)
AOC27-2	03/18/16	2 - 3	N	ND (5.2)	ND (5.2)
	03/18/16	5 - 6	N	ND (5.8)	ND (5.8)
	03/18/16	9 - 10	N	ND (5.2)	ND (5.2)
AOC27-20	03/01/16	2 - 3	N	ND (6.8)	ND (6.8)
	03/01/16	2 - 3	FD	ND (7.3)	ND (7.3)
	03/01/16	5 - 6	N	ND (5.6)	ND (5.6)
	03/01/16	9 - 10	N	ND (7.1)	ND (7.1)
AOC27-24	03/18/16	2 - 3	N	ND (7.8)	ND (7.8)
	03/18/16	5 - 6	N	ND (5.5)	ND (5.5)
	03/18/16	9 - 10	N	ND (6)	ND (6)
AOC27-24SW	03/18/16	2 - 3	N	ND (7.4)	ND (7.4)
	03/18/16	5 - 6	N	ND (5.7)	ND (5.7)
	03/18/16	9 - 10	N	ND (290)	ND (290)
AOC27-27	03/02/16	2 - 3	N	ND (8.3)	ND (8.3)
AOC27-36	03/17/16	2 - 3	N	ND (6)	ND (6) J
	03/17/16	5 - 6	N	ND (6.4)	ND (6.4)
	03/17/16	9.6 - 10	N	ND (6.5)	ND (6.5) J
AOC27-4	03/17/16	2 - 3	N	ND (6.8)	ND (6.8)
	03/17/16	5 - 6	N	ND (6.1)	ND (6.1)
AOC27-5	03/17/16	2 - 3	N	ND (5.6)	ND (5.6) J
	03/17/16	5 - 6	N	ND (6.4)	ND (6.4)
	03/17/16	9 - 10	N	ND (5.1)	ND (5.1) J
AOC27-50	03/02/16	2 - 3	N	ND (6.5)	ND (6.5)
	03/02/16	5 - 6	N	ND (7.3)	ND (7.3)
	03/02/16	9 - 10	N	ND (5.8)	ND (5.8)

TABLE 3-10d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	**6,800**	**110,000**
			Residential Regional Screening Levels [2]:	**6,800**	**110,000**
			Residential DTSC-SL [3]:	**NE**	**NE**
			Ecological Comparison Values [4]:	**NE**	**NE**
			Background [5]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Bromomethane**	**Chloro methane**
AOC27-51	02/17/17	0 - 0.5	N	ND (6.5)	ND (6.5)
AOC27-6	02/29/16	2 - 3	N	ND (8.5)	ND (8.5)
	02/29/16	5 - 6	N	ND (7.1)	ND (7.1)
AOC27-7	02/29/16	2 - 3	N	ND (12)	ND (12)
	03/01/16	5 - 6	N	ND (6.6)	ND (6.6)
AOC27-8	03/01/16	1 - 2	N	23	9.2
	03/01/16	5 - 6	N	ND (4.9)	ND (4.9)
AOC27-9	03/08/16	2 - 3	N	ND (5.4)	5.5
	03/08/16	5 - 6	N	ND (6.7)	ND (6.7)
	03/08/16	9 - 10	N	ND (6.3)	ND (6.3)

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.
Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-10e

Sample Results: Total Petroleum Hydrocarbons

AOC 27 – MW-24 Bench

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
24soil-01	01/31/08	2.5 - 3	N	13	---
24soil-02	01/31/08	2.5 - 3	N	160	---
AOC27-1	03/18/16	0 - 1	N	18	99
	03/18/16	2 - 3	N	ND (10)	ND (10)
	03/18/16	5 - 6	N	ND (10)	ND (10)
	03/18/16	9 - 10	N	ND (10)	ND (10)
AOC27-18	03/17/16	0 - 1	N	12	93
	03/17/16	2 - 3	N	160	520
	03/17/16	5 - 6	N	30	130
	03/17/16	9 - 10	N	27	120
AOC27-18E	03/17/16	4 - 5	N	49	190
AOC27-2	03/18/16	0 - 1	N	ND (10)	ND (10)
	03/18/16	2 - 3	N	ND (10)	ND (10)
	03/18/16	5 - 6	N	ND (10)	ND (10)
	03/18/16	9 - 10	N	ND (10)	ND (10)
AOC27-20	03/01/16	0 - 1	N	ND (10)	ND (10)
	03/01/16	2 - 3	N	ND (10)	ND (10)
	03/01/16	2 - 3	FD	ND (11)	ND (11)
	03/01/16	5 - 6	N	ND (10)	ND (10)
	03/01/16	9 - 10	N	ND (10)	ND (10)
AOC27-24	03/18/16	0 - 1	N	ND (10)	ND (10)
	03/18/16	2 - 3	N	ND (10)	ND (10)
	03/18/16	5 - 6	N	ND (10)	ND (10)
	03/18/16	9 - 10	N	ND (10)	ND (10)
AOC27-24SW	03/18/16	0 - 1	N	ND (10)	ND (10)
	03/18/16	2 - 3	N	ND (10)	ND (10)
	03/18/16	5 - 6	N	ND (10)	ND (10)
	03/18/16	9 - 10	N	ND (10)	ND (10)
AOC27-27	03/02/16	0 - 1	N	ND (10)	ND (10)
	03/02/16	2 - 3	N	ND (10)	ND (10)
AOC27-36	03/17/16	0 - 1	N	ND (10)	ND (10)
	03/17/16	2 - 3	N	ND (10)	ND (10)
	03/17/16	5 - 6	N	ND (11)	ND (11)
	03/17/16	9.6 - 10	N	ND (11)	ND (11)
AOC27-4	03/17/16	0 - 1	N	ND (10)	12
	03/17/16	0 - 1	FD	ND (10)	48
	03/17/16	2 - 3	N	ND (10)	11
	03/17/16	5 - 6	N	ND (10)	12

TABLE 3-10e
Sample Results: Total Petroleum Hydrocarbons
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	230	11,000
			Residential Regional Screening Levels [2] :	NE	NE
			Residential DTSC-SL [3] :	NE	NE
			RWQCB Environmental Screening Levels [4] :	230	11,000
			Ecological Comparison Values [5] :	NE	NE
			Background [6] :	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC27-5	03/17/16	0 - 1	N	ND (10)	54
	03/17/16	2 - 3	N	18	91
	03/17/16	5 - 6	N	ND (10)	ND (10)
	03/17/16	9 - 10	N	ND (10)	ND (10)
AOC27-50	03/02/16	0 - 1	N	ND (10)	16
	03/02/16	2 - 3	N	120	780
	03/02/16	5 - 6	N	ND (10)	ND (10)
	03/02/16	9 - 10	N	ND (10)	ND (10)
AOC27-51	02/17/17	0 - 0.5	N	12	37
	02/17/17	2 - 3	N	ND (10)	15
	02/17/17	5 - 6	N	ND (10)	12
AOC27-6	02/29/16	0 - 1	N	79	200
	02/29/16	2 - 3	N	11	40
	02/29/16	5 - 6	N	ND (10)	17
AOC27-7	02/29/16	0 - 1	N	35	270
	02/29/16	2 - 3	N	96	790
	03/01/16	5 - 6	N	ND (10)	33
AOC27-8	03/01/16	1 - 2	N	ND (10)	56
	03/01/16	5 - 6	N	ND (10)	12
AOC27-9	03/08/16	0 - 1	N	ND (10)	ND (10)
	03/08/16	0 - 1	FD	ND (10)	ND (10)
	03/08/16	2 - 3	N	ND (10)	ND (10)
	03/08/16	5 - 6	N	ND (10)	ND (10)
	03/08/16	9 - 10	N	ND (10)	ND (10)
PA-13	01/27/16	0 - 1	N	ND (10)	34

TABLE 3-10e

Sample Results: Total Petroleum Hydrocarbons
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-10f

Sample Results: General Chemistry Parameters
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	**NE**
			Residential Regional Screening Levels [2]:	**NE**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
24soil-01	01/31/08	2.5 - 3	N	8.8
24soil-02	01/31/08	2.5 - 3	N	9.1
AOC27-1	03/18/16	0 - 1	N	9.1
	03/18/16	2 - 3	N	9
	03/18/16	5 - 6	N	8.5
	03/18/16	9 - 10	N	8
AOC27-18	03/17/16	0 - 1	N	8.4
	03/17/16	2 - 3	N	8.5
	03/17/16	5 - 6	N	8.6
	03/17/16	9 - 10	N	8.6
AOC27-18E	03/17/16	4 - 5	N	8.7
AOC27-2	03/18/16	0 - 1	N	9.7
	03/18/16	2 - 3	N	9.3
	03/18/16	5 - 6	N	8.6
	03/18/16	9 - 10	N	8.1
AOC27-20	03/01/16	0 - 1	N	9.2
	03/01/16	2 - 3	N	8.5
	03/01/16	2 - 3	FD	8.3
	03/01/16	5 - 6	N	9.5
	03/01/16	9 - 10	N	8.5
AOC27-24	03/18/16	0 - 1	N	9.2
	03/18/16	2 - 3	N	8.7
	03/18/16	5 - 6	N	8.4
	03/18/16	9 - 10	N	8.4
AOC27-24SW	03/18/16	0 - 1	N	8.1
	03/18/16	2 - 3	N	8.2
	03/18/16	5 - 6	N	8.1
	03/18/16	9 - 10	N	8.3
AOC27-27	03/02/16	0 - 1	N	8.6
	03/02/16	2 - 3	N	7.9
AOC27-36	03/17/16	0 - 1	N	8.2
	03/17/16	2 - 3	N	8.2
	03/17/16	5 - 6	N	8.2
	03/17/16	9.6 - 10	N	8.5

TABLE 3-10f

Sample Results: General Chemistry Parameters
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	**NE**
			Residential Regional Screening Levels [2]:	**NE**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
AOC27-4	03/17/16	0 - 1	N	8.4
	03/17/16	0 - 1	FD	8.4
	03/17/16	2 - 3	N	8.1
	03/17/16	5 - 6	N	9.2
AOC27-5	03/17/16	0 - 1	N	9.3
	03/17/16	2 - 3	N	8.5
	03/17/16	5 - 6	N	8.4
	03/17/16	9 - 10	N	8.2
AOC27-50	03/02/16	0 - 1	N	9.4
	03/02/16	2 - 3	N	8.2
	03/02/16	5 - 6	N	8.4
	03/02/16	9 - 10	N	8.2
AOC27-6	02/29/16	0 - 1	N	8.2
	02/29/16	2 - 3	N	9.8
	02/29/16	5 - 6	N	9.1
AOC27-7	02/29/16	0 - 1	N	10
	02/29/16	2 - 3	N	10
	03/01/16	5 - 6	N	8.8
AOC27-8	03/01/16	1 - 2	N	10
	03/01/16	5 - 6	N	9
AOC27-9	03/08/16	0 - 1	N	8.3
	03/08/16	0 - 1	FD	8.9
	03/08/16	2 - 3	N	8.2
	03/08/16	5 - 6	N	8.4
	03/08/16	9 - 10	N	8.2
Category 3				
24debris-01	01/18/08 [Ю]	Unknown	N	11
24debris-02	01/18/08 [Ж]	Unknown	N	4.6
24debris-03	01/18/08 [Ψ]	0	N	8

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

ψ	tar sample
Ж	wood sample
Ю	debris sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
µS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-10g
Sample Results: Pesticides
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC27-1	03/18/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/18/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC27-18	03/17/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/17/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC27-18E	03/17/16	4 - 5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-2	03/18/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-20	03/01/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/01/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/01/16	2 - 3	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	03/01/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/01/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC27-24	03/18/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-24SW	03/18/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/18/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-27	03/02/16	0 - 1	N	ND (2)	ND (2)	ND (2) J	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2) J	ND (2) J	ND (2)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.1) J	ND (51) J
	03/02/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) J*	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1) J	ND (2.1) J	ND (2.1)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.2) J	ND (52) J
AOC27-36	03/17/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	03/17/16	5 - 6	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J
	03/17/16	9.6 - 10	N	ND (2.2) *	ND (2.2) *	ND (2.2) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.5)	ND (55) J

TABLE 3-10g

Sample Results: Pesticides
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2]:				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
AOC27-4	03/17/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	0 - 1	FD	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC27-5	03/17/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/17/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	03/17/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-50	03/02/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/02/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) J*	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1) J	ND (2.1) J	ND (2.1)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.1) J	ND (51) J
	03/02/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) J*	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1) J	ND (2.1) J	ND (2.1)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.2) J	ND (52) J
	03/02/16	9 - 10	N	ND (2.1) *	ND (2.1) *	ND (2.1) J*	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1) J	ND (2.1) J	ND (2.1)	---	ND (1)	ND (1)	ND (1) J	ND (1)	ND (5.2) J	ND (52) J
AOC27-51	02/17/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC27-6	02/29/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
	02/29/16	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	02/29/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC27-7	02/29/16	0 - 1	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	02/29/16	2 - 3	N	ND (2.3) *	ND (2.3) *	ND (2.3) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.3)	ND (1.1)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.7)	ND (57) J
	03/01/16	5 - 6	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-8	03/01/16	1 - 2	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/01/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC27-9	03/08/16	0 - 1	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/08/16	0 - 1	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/08/16	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/08/16	5 - 6	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	03/08/16	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-10h
Sample Results: Polychlorinated Biphenyls
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
AOC27-1	03/18/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-18	03/17/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30 J	ND (17)	30
	03/17/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/17/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/17/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-18E	03/17/16	4 - 5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	35 J	ND (17)	35
AOC27-2	03/18/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-20	03/01/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/01/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/01/16	2 - 3	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/01/16	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/01/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-24	03/18/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)

TABLE 3-10h
Sample Results: Polychlorinated Biphenyls
AOC 27 – MW-24 Bench
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				Polychlorinated biphenyls (µg/kg)							
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
AOC27-24SW	03/18/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/18/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-27	03/02/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	32	ND (17)	32
	03/02/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-36	03/17/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	49 J	ND (17)	49
	03/17/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	20	ND (17)	20
	03/17/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (9)
	03/17/16	9.6 - 10	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (9)
AOC27-4	03/17/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/17/16	0 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	21	ND (17)	21
	03/17/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/17/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-5	03/17/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	17	ND (17)	17
	03/17/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/17/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/17/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-50	03/02/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/02/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/02/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/02/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-51	02/17/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	02/17/17	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	02/17/17	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)

TABLE 3-10h

Sample Results: Polychlorinated Biphenyls
AOC 27 – MW-24 Bench
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				Polychlorinated biphenyls (µg/kg)							
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
AOC27-6	02/29/16	0 - 1	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (9)
	02/29/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	02/29/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-7	02/29/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	02/29/16	2 - 3	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (9.5)
	03/01/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-8	03/01/16	1 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/01/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
AOC27-9	03/08/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	19
	03/08/16	0 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/08/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
	03/08/16	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (8.5)
PA-13	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	22	ND (17)	47.5

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate

TABLE 3-10h

Sample Results: Polychlorinated Biphenyls
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J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-10i

Sample Results: Dioxins and Furans
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
Category 1																							
AOC27-1	03/18/16	2 - 3	N	ND (1.4)	ND (0.43)	ND (0.1)	ND (0.093)	ND (0.059)	ND (0.095)	ND (0.058)	ND (0.09)	ND (0.15)	ND (0.073)	ND (0.06)	ND (0.062)	ND (0.063)	ND (0.053)	ND (0.15)	11 J	ND (0.32)	0.2	0.12	0.12
AOC27-18	03/17/16	0 - 1	N	280	ND (1.3)	ND (1.5)	ND (1.7)	1.4 J	7.8 J	2.1 J	4.9 J	ND (0.68)	ND (0.53)	ND (0.47)	ND (65)	ND (0.88)	ND (0.14)	ND (0.68)	3,300	110	6	9.3	9.3
	03/17/16	2 - 3	N	290	ND (170)	ND (4.3)	ND (1.7)	ND (1.9)	11 J	ND (5.8)	ND (2.7)	ND (0.76)	ND (1)	ND (0.95)	1.9 J	ND (1)	ND (0.37)	ND (0.37)	3,300	190	3.8	7.6	7.6
	03/17/16	5 - 6	N	240	ND (100)	ND (2.7)	14	ND (1.3)	ND (1.3)	ND (13)	ND (2.1)	ND (1.5)	ND (0.63)	ND (1.1)	ND (1.3)	ND (1.2)	ND (0.26)	ND (0.41)	2,600	96	4	6.8	6.8
AOC27-18E	03/17/16	4 - 5	N	330	ND (96)	ND (5.5)	ND (1.2)	ND (1.7)	5.4 J	ND (14)	ND (1.1)	ND (2)	ND (0.83)	ND (1.5)	ND (66)	ND (1.6)	ND (0.2)	ND (0.9)	3,800	110	7.4	11	11
AOC27-2	03/18/16	0 - 1	N	16	ND (0.54)	ND (0.64)	ND (0.29)	ND (0.13)	0.56 J	ND (1.3)	ND (0.41)	ND (0.15)	ND (0.27)	ND (0.31)	ND (4.4)	ND (0.33)	ND (0.066)	ND (0.31)	160	6.2 J	0.87	0.84	0.84
	03/18/16	2 - 3	N	15	ND (0.076)	ND (0.31)	ND (0.26)	ND (0.33)	ND (0.44)	ND (0.89)	ND (0.35)	ND (0.39)	ND (0.17)	ND (0.53)	ND (5.6)	ND (0.56)	ND (0.066)	ND (0.34)	130	7.2 J	1	0.83	0.83
AOC27-20	03/01/16	0 - 1	N	470	67	ND (6.4)	4.1 J	ND (2.8)	16	5.5 J	7.3 J	ND (3.2)	ND (1.4)	ND (0.41)	ND (160)	ND (0.92)	ND (0.54)	ND (0.44)	4,200	170	13	19	19
	03/01/16	2 - 3	N	130	15	ND (3.3)	2.2 J	ND (1.1)	5.5 J	1.8 J	ND (5.2)	ND (0.41)	ND (0.4)	ND (0.35)	ND (48)	ND (0.35)	ND (0.16)	ND (0.17)	1,000	36	4	5.8	5.8
	03/01/16	5 - 6	N	200	31	ND (3.8)	ND (1.8)	ND (2.1)	8.8 J	ND (1.9)	ND (3.2)	ND (2.4)	1.6 J	ND (0.59)	ND (75)	ND (0.59)	ND (0.95)	0.54 J	1,700	84	8	10	10
AOC27-4	03/17/16	0 - 1	N	1,100	ND (0.34)	7.1 J	ND (5.4)	8.9 J	20	ND (14)	7.8 J	ND (0.31)	ND (1.4)	ND (0.4)	ND (0.3)	ND (0.43)	ND (0.16)	0.73 J	11,000	260	6.8	20	20
	03/17/16	0 - 1	FD	1,000	45	5.3 J	6 J	7.8 J	18	ND (0.81)	6.9 J	ND (0.76)	1.2 J	ND (0.55)	ND (150)	ND (0.58)	ND (0.24)	ND (0.36)	9,800	200	14	26	26
	03/17/16	2 - 3	N	77	ND (0.39)	ND (1.5)	0.73 J	ND (0.79)	2.1 J	ND (0.77)	1.3 J	ND (0.92)	ND (0.46)	ND (0.35)	ND (15)	ND (0.17)	ND (0.34)	ND (0.33)	790	31	1.9	2.8	2.8
	03/17/16	5 - 6	N	ND (6.2)	ND (0.38)	ND (0.66)	ND (0.36)	ND (0.28)	ND (0.21)	ND (0.25)	ND (0.21)	ND (0.32)	ND (0.19)	ND (0.092)	ND (0.83)	ND (0.093)	ND (0.1)	ND (0.11)	ND (88)	ND (0.29)	ND (0.37)	ND (0.34)	ND (0.34)
AOC27-5	03/17/16	2 - 3	N	740	ND (0.88)	21	ND (3.7)	ND (3.9)	ND (11)	ND (9.7)	ND (5.7)	ND (0.52)	ND (1.5)	ND (0.48)	ND (98)	ND (0.57)	ND (0.24)	ND (0.29)	10,000	200	9.3	18	18
	03/17/16	5 - 6	N	ND (2.4)	ND (0.076)	ND (0.09)	ND (0.2)	ND (0.072)	ND (0.095)	ND (0.095)	ND (0.09)	ND (0.084)	ND (0.099)	ND (0.18)	ND (0.62)	ND (0.19)	ND (0.054)	ND (0.099)	35	ND (0.73)	0.29	0.2	0.2
AOC27-50	03/02/16	0 - 1	N	96	19	ND (1.2)	3.7 J	3.2 J	9.1 J	3.6 J	7.4 J	ND (0.9)	5.8 J	ND (1.9)	4.3 J	3.1 J	ND (1.5)	1.2 J	380	12 J	13	12	12
	03/02/16	2 - 3	N	420	ND (79)	6.6 J	ND (15)	12 J	52	ND (13)	34	ND (3)	32	ND (5.7)	ND (13)	12 J	ND (9.1) *	ND (4.6)	1,100	40	59	57	57
	03/02/16	5 - 6	N	9 J	ND (1.5)	ND (0.95)	ND (0.31)	ND (0.2)	ND (0.27)	ND (0.13)	ND (0.38)	0.55 J	ND (0.17)	ND (0.14)	ND (0.34)	ND (0.14)	ND (0.091)	ND (0.31)	ND (33)	ND (0.89)	0.5	0.41	0.41
AOC27-51	02/17/17	0 - 0.5	N	71	15	ND (0.91)	2.5 J	1.6 J	6.4 J	1.7 J	5.6 J	ND (0.27)	4 J	ND (0.89)	ND (12)	1.5 J	1.3 J	0.78 J	420	34	9.6	9.2	9.2
	02/17/17	2 - 3	N	6.2 J	1.2 J	ND (0.13)	0.29 J	ND (0.072)	0.87 J	ND (0.15)	0.68 J	ND (0.083)	ND (0.51)	ND (0.14)	ND (0.8)	ND (0.14)	ND (0.099)	ND (0.067)	ND (29)	ND (1)	0.58	0.65	0.65
	02/17/17	5 - 6	N	2.2 J	ND (0.27)	ND (0.051)	ND (0.057)	ND (0.094)	ND (0.057)	ND (0.09)	ND (0.056)	ND (0.11)	ND (0.074)	ND (0.11)	ND (0.41)	ND (0.11)	ND (0.038)	ND (0.026)	ND (27)	ND (0.85)	0.17	0.15	0.15
AOC27-6	02/29/16	0 - 1	N	610	99	6.4 J	32	14	77	12 J	67	3.1 J	70	7.6 J	14	11 J	19	5.4	2,300	84	120	120	120
	02/29/16	2 - 3	N	180	24	1.6 J	7.3 J	3.6 J	17	ND (2.8)	16	ND (0.94)	17	2 J	ND (18)	3.2 J	5.7	1.5 J	860	29	32	32	32
	02/29/16	5 - 6	N	47	10 J	ND (0.19)	1.9 J	ND (0.77)	5.2 J	ND (0.92)	ND (4.7)	ND (0.57)	4.3 J	ND (0.29)	ND (5.9)	ND (0.68)	ND (0.87)	ND (0.35)	330	ND (12)	6.2	6.9	6.9
AOC27-7	02/29/16	0 - 1	N	1,500	240	17	38	27	100	26	ND (63)	ND (5.7)	45	16	26	26	6.4	17	6,500	140	110	110	110
	02/29/16	2 - 3	N	1,500	380	36	62	68	160	ND (25)	120	ND (14)	110	39	81	65	29	ND (26)	4,000	190	260	230	230
	03/01/16	5 - 6	N	45	ND (0.48)	ND (0.57)	2 J	1.1 J	4.1 J	0.88 J	ND (3.1)	ND (0.2)	2.4 J	ND (0.59)	ND (1)	0.85 J	ND (0.25)	ND (0.15)	ND (190)	ND (5.4)	4.1	4.3	4.3
AOC27-8	03/01/16	1 - 2	N	330	67	ND (3.9)	11 J	7 J	27	ND (6.6)	21	ND (1)	14	3.9 J	ND (30)	6.7 J	4 J	3.9 J	1,500	53	36	33	33
	03/01/16	5 - 6	N	31	4.7 J	ND (1.2)	1.4 J	0.72 J	ND (1.8)	ND (0.52)	ND (1.3)	ND (1.2)	1.4 J	ND (0.43)	ND (5.1)	0.51 J	ND (0.17)	ND (0.43)	ND (170)	ND (6.8)	2.9	2.8	2.8

TABLE 3-10i
Sample Results: Dioxins and Furans
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
			Interim Screening Level [1] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**4.8**	**NE**	**NE**	**NE**	**4.8**	**NE**	**NE**	**NE**	**16**	**50**	**5.58**
			Residential Regional Screening Levels [2] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**4.8**	**NE**	**NE**	**NE**	**4.8**	**NE**	**NE**	**NE**	**NE**	**4.8**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**50**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**16**	**NE**	**1.6**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.98**	**5.58**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC27-9	03/08/16	0 - 1	N	110	23	ND (1.8)	1.3 J	ND (0.84)	3.7 J	1.3 J	ND (2.2)	ND (0.36)	ND (0.37)	ND (0.69)	ND (36)	ND (0.69)	ND (1.2)	1.4 J	960	120	5.2	5.3	5.3
	03/08/16	2 - 3	N	60	ND (0.64)	ND (0.76)	ND (0.41)	ND (0.73)	ND (0.35)	ND (0.64)	ND (0.36)	ND (0.83)	ND (0.57)	ND (0.82)	ND (9.7)	ND (0.52)	ND (0.21)	ND (1.9)	540	23 J	2.4	2	2
	03/08/16	5 - 6	N	20	3.3 J	ND (0.94)	ND (0.7)	ND (0.27)	ND (1.1)	ND (0.32)	ND (0.79)	ND (0.34)	ND (0.32)	ND (0.36)	ND (3.6)	ND (0.33)	ND (0.2)	0.91 J	ND (150)	ND (6.4)	1.7	1	1

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Interim Screening Level are circled.

--	not analyzed
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC-SL	DTSC Screening Levels
DTSC	California Department of Toxic Substances Control
FD	Field Dupliicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
N	Primary Sample
NA	NA = not applicable
NE	not established
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	USEPA = United States Environmental Protection Agency

1 For individual dioxins and furans, selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher. For TEQ values, selected value is the DTSC-SL.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. JanuaryCalifornia Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

TEQ = Sum of Result xToxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TEQMammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

Teq Humans = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.

TABLE 3-10j

Constituent Concentrations in Soil Compared to Screening Values
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Dioxins and Furans																
TEQ Avian	ng/kg	13	31 / 32 (97%)	260	15	(5.98)	6	(16)	NA	(NE)	NA	(NA)	NA	(NE)	6	(16)
TEQ Human	ng/kg	13	31 / 32 (97%)	230	18	(5.58)	NA	(NE)	4	(50)	NA	(NA)	1	(220)	4	(50)
TEQ Mammals	ng/kg	13	31 / 32 (97%)	230	18	(5.58)	18	(1.6)	NA	(NE)	NA	(NA)	NA	(NE)	18	(5.58)
Metals																
Antimony	mg/kg	20	1 / 60 (1.7%)	3.5	NA	(NE)	1	(0.285)	0	(31)	NA	(NA)	0	(470)	1	(0.285)
Arsenic	mg/kg	20	59 / 60 (98%)	20	1	(11)	1	(11.4)	1	(0.11) *	NA	(NA)	1	(0.36) *	1	(11)
Barium	mg/kg	20	60 / 60 (100%)	210	0	(410)	0	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	0	(410)
Beryllium	mg/kg	20	0 / 60 (0%)	ND (1.1) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	20	10 / 60 (17%)	4.5	7	(1.1)	7	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	7	(1.1)
Chromium, Hexavalent	mg/kg	20	21 / 60 (35%)	4.8	6	(0.83)	0	(139.6)	6	(0.3)	NA	(NA)	0	(6.3)	6	(0.83)
Chromium, total	mg/kg	20	60 / 60 (100%)	290	4	(39.8)	4	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	4	(39.8)
Cobalt	mg/kg	20	60 / 60 (100%)	16	1	(12.7)	1	(13)	0	(23)	NA	(NA)	0	(350)	1	(12.7)
Copper	mg/kg	20	60 / 60 (100%)	1,000	10	(16.8)	9	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	10	(16.8)
Lead	mg/kg	20	59 / 60 (98%)	630	16	(8.39)	16	(0.0166) *	4	(80)	NA	(NA)	2	(320)	16	(8.39)
Mercury	mg/kg	20	13 / 60 (22%)	0.95	NA	(NE)	13	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	13	(0.0125)
Molybdenum	mg/kg	20	6 / 60 (10%)	26	4	(1.37)	4	(2.25)	0	(390)	NA	(NA)	0	(5,800)	4	(1.37)
Nickel	mg/kg	20	60 / 60 (100%)	97	2	(27.3)	2	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	2	(27.3)
Selenium	mg/kg	20	2 / 60 (3.3%)	6.2	1	(1.47)	1	(0.177) *	0	(390)	NA	(NA)	0	(5,800)	1	(1.47)
Thallium	mg/kg	20	0 / 60 (0%)	ND (2.3) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	20	60 / 60 (100%)	38	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	20	60 / 60 (100%)	1,300	13	(58)	13	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	13	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	1	1 / 1 (100%)	8,100	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	1	1 / 1 (100%)	21,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	1	1 / 1 (100%)	28,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	1	1 / 1 (100%)	6,200	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	1	1 / 1 (100%)	310	0	(402)	0	(220)	0	(1,800)	NA	(NA)	0	(6,900)	0	(402)
Potassium	mg/kg	1	1 / 1 (100%)	2,900	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	1	1 / 1 (100%)	460	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Volatile Organic Compounds																
Bromomethane	µg/kg	17	3 / 41 (7.3%)	26	NA	(NE)	NA	(NE)	0	(6,800)	NA	(NA)	0	(30,000)	0	(6,800)
Chloro methane	µg/kg	17	4 / 41 (9.8%)	11	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(460,000)	0	(110,000)
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	µg/kg	20	2 / 60 (3.3%)	51	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Acenaphthylene	µg/kg	20	1 / 60 (1.7%)	5.1	NA	(NE)	NA	(NE)	0	(3,600,000)	NA	(NA)	0	(45,000,000)	0	(3,600,000)
Anthracene	µg/kg	20	8 / 60 (13%)	710	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Benzo (a) anthracene	µg/kg	20	16 / 60 (27%)	3,400	NA	(NE)	NA	(NE)	2	(1,100)	NA	(NA)	0	(21,000)	2	(1,100)
Benzo (a) pyrene	µg/kg	20	16 / 60 (27%)	2,000	NA	(NE)	NA	(NE)	6	(110)	NA	(NA)	0	(2,100)	6	(110)
Benzo (b) fluoranthene	µg/kg	20	32 / 60 (53%)	3,400	NA	(NE)	NA	(NE)	3	(1,100)	NA	(NA)	0	(21,000)	3	(1,100)
Benzo (ghi) perylene	µg/kg	20	15 / 60 (25%)	1,500	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Benzo (k) fluoranthene	µg/kg	20	18 / 60 (30%)	1,300	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)

TABLE 3-10j
Constituent Concentrations in Soil Compared to Screening Values
AOC 27 – MW-24 Bench
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Polycyclic Aromatic Hydrocarbons																
Chrysene	µg/kg	20	23 / 60 (38%)	3,000	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Dibenzo (a,h) anthracene	µg/kg	20	3 / 60 (5.0%)	530	NA	(NE)	NA	(NE)	1	(110)	NA	(NA)	0	(2,100)	1	(110)
Fluoranthene	µg/kg	20	23 / 60 (38%)	8,600	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Fluorene	µg/kg	20	1 / 60 (1.7%)	9.2	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Indeno (1,2,3-cd) pyrene	µg/kg	20	14 / 60 (23%)	1,200	NA	(NE)	NA	(NE)	1	(1,100)	NA	(NA)	0	(21,000)	1	(1,100)
Naphthalene	µg/kg	20	2 / 60 (3.3%)	6.4	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	20	13 / 60 (22%)	3,100	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	20	24 / 60 (40%)	6,600	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	20	60 / 60 (100%)	3,877	7	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	20	60 / 60 (100%)	31,530	10	(267.4)	6	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	6	(1,160)
B(a)P Equivalent	µg/kg	20	34 / 60 (57%)	3,300	11	(55)	NA	(NE)	8	(110)	NA	(NA)	1	(2,100)	8	(110)
Polychlorinated biphenyls																
Aroclor 1254	µg/kg	18	9 / 58 (16%)	49	NA	(NE)	NA	(NE)	0	(240)	NA	(NA)	0	(970)	0	(240)
Total PCBs	µg/kg	18	9 / 58 (16%)	49	NA	(NE)	0	(204)	0	(230)	NA	(NA)	0	(940)	0	(204)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	20	15 / 60 (25%)	160	NA	(NE)	NA	(NE)	0	(230)	0	(230)	0	(1,100)	0	(230)
TPH as motor oil	mg/kg	18	25 / 58 (43%)	790	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-11a

Sample Results: Metals
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC28-OS1	04/06/11	9 - 9.5	N	---	---	---	---	---	ND (0.41) J	17	---	---	---	---	3.7	---	---	---	---	---	---
AOC28-OS2	04/06/11	2.5 - 3	N	---	---	---	---	---	ND (0.4) J	---	---	---	---	---	---	---	---	---	---	---	---
	04/06/11	8.5 - 9	N	ND (2.1) J*	9.3	240	ND (1) J*	ND (1) J	ND (0.41) J	24	9.1	ND (10)	7.2	ND (0.1) J*	5	17	ND (1) J	ND (1)	ND (2.1) J*	45	70

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-11b

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
			Residential Regional Screening Levels [2] :	**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
AOC28a-01	12/17/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8 J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	13.2	6.5
	12/17/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	12/17/15	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC28b-01	12/17/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC28c-01	12/17/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.5	15 J	38 J	ND (5.1)	13 J	19	ND (5.1)	37	ND (5.1)	ND (5.1)	ND (5.1)	7.8	36	7.8	166.5	23
	12/17/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	ND	20	6.2
AOC28d-01	12/17/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	12/17/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	12/17/15	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC28-OS1	04/06/11	0 - 0.5	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND	ND	ND (5.8)
	04/06/11	2.5 - 3	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (8.3)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	04/06/11	5.5 - 6	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (6.9)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	04/06/11	9 - 9.5	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	8.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	37	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.8)	ND (5.1)	20	ND	65.8	6.6
AOC28-OS2	04/06/11	0 - 0.5	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	5.7	ND (5)	ND (5)	5.7	6	8.4
	04/06/11	2.5 - 3	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (6.6)	ND (5)	ND (5)	ND	ND	ND (5.8)
	04/06/11	5.5 - 6	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (7.8)	ND (5)	ND (5)	ND	ND	ND (5.8)
	04/06/11	8.5 - 9	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (6)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-11c
Sample Results: Total Petroleum Hydrocarbons
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC28a-01	12/17/15	0 - 0.5	N	ND (10)	130
	12/17/15	2 - 3	N	15	200
	12/17/15	2 - 3	FD	17	210
AOC28b-01	12/17/15	0 - 0.5	N	50	410
AOC28c-01	12/17/15	0 - 0.5	N	ND (10)	53
	12/17/15	2 - 3	N	ND (10)	17
AOC28d-01	12/17/15	0 - 0.5	N	ND (10)	11
	12/17/15	2 - 3	N	ND (10)	73
	12/17/15	5 - 6	N	ND (10)	12
AOC28-OS1	04/06/11	0 - 0.5	N	32	150
	04/06/11	2.5 - 3	N	16	15
	04/06/11	5.5 - 6	N	17	34
	04/06/11	9 - 9.5	N	160	700
AOC28-OS2	04/06/11	0 - 0.5	N	ND (10)	ND (10)
	04/06/11	2.5 - 3	N	17	37
	04/06/11	5.5 - 6	N	ND (10)	ND (10)
	04/06/11	8.5 - 9	N	12	39

TABLE 3-11c

Sample Results: Total Petroleum Hydrocarbons
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-11d

Sample Results: General Chemistry Parameters
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	NE
			Residential Regional Screening Levels [2]:	NE
			Residential DTSC-SL [3]:	NE
			Ecological Comparison Values [4]:	NE
			Background [5]:	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC28-OS1	04/06/11	0 - 0.5	N	8.9
	04/06/11	2.5 - 3	N	8.8
	04/06/11	5.5 - 6	N	8.1
	04/06/11	9 - 9.5	N	9.8
AOC28-OS2	04/06/11	0 - 0.5	N	8.4
	04/06/11	2.5 - 3	N	8.2
	04/06/11	5.5 - 6	N	8.4
	04/06/11	8.5 - 9	N	8.1

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
μS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-11e

Sample Results: Polychlorinated Biphenyls
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
AOC28a-01	12/17/15	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	12/17/15	2 - 3	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
AOC28b-01	12/17/15	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
AOC28c-01	12/17/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
AOC28d-01	12/17/15	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	12/17/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
AOC28-OS1	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	04/06/11	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	04/06/11	5.5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	04/06/11	9 - 9.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
AOC28-OS2	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	04/06/11	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	04/06/11	5.5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	04/06/11	8.5 - 9	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram

TABLE 3-11e

Sample Results: Polychlorinated Biphenyls
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-11f

Constituent Concentrations in Soil Compared to Screening Values
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Metals																
Antimony	mg/kg	1	0 / 1 (0%)	ND (2.1) ‡	NA	(NE)	0	(0.285)	0	(31)	NA	(NA)	0	(470)	0	(0.285)
Arsenic	mg/kg	1	1 / 1 (100%)	9.3	0	(11)	0	(11.4)	0	(0.11) *	NA	(NA)	0	(0.36) *	0	(11)
Barium	mg/kg	1	1 / 1 (100%)	240	0	(410)	0	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	0	(410)
Beryllium	mg/kg	1	0 / 1 (0%)	ND (1) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Chromium, total	mg/kg	2	2 / 2 (100%)	24	0	(39.8)	0	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	0	(39.8)
Cobalt	mg/kg	1	1 / 1 (100%)	9.1	0	(12.7)	0	(13)	0	(23)	NA	(NA)	0	(350)	0	(12.7)
Lead	mg/kg	1	1 / 1 (100%)	7.2	0	(8.39)	0	(0.0166) *	0	(80)	NA	(NA)	0	(320)	0	(8.39)
Mercury	mg/kg	1	0 / 1 (0%)	ND (0.1) ‡	NA	(NE)	0	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	0	(0.0125)
Molybdenum	mg/kg	2	2 / 2 (100%)	5	2	(1.37)	2	(2.25)	0	(390)	NA	(NA)	0	(5,800)	2	(1.37)
Nickel	mg/kg	1	1 / 1 (100%)	17	0	(27.3)	0	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	0	(27.3)
Thallium	mg/kg	1	0 / 1 (0%)	ND (2.1) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	1	1 / 1 (100%)	45	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	1	1 / 1 (100%)	70	1	(58)	1	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	1	(58)
Polycyclic Aromatic Hydrocarbons																
Benzo (a) anthracene	µg/kg	6	2 / 16 (13%)	8.8	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	6	1 / 16 (6.3%)	15	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Benzo (b) fluoranthene	µg/kg	6	4 / 16 (25%)	38	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (k) fluoranthene	µg/kg	6	1 / 16 (6.3%)	13	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	6	2 / 16 (13%)	37	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Fluoranthene	µg/kg	6	3 / 16 (19%)	37	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Naphthalene	µg/kg	6	1 / 16 (6.3%)	5.7	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NA)	0	(17,000)	0	(3,800)
Phenanthrene	µg/kg	6	1 / 16 (6.3%)	7.8	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	6	3 / 16 (19%)	36	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	6	16 / 16 (100%)	7.8	0	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	6	16 / 16 (100%)	166.5	0	(267.4)	0	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	0	(1,160)
B(a)P Equivalent	µg/kg	6	5 / 16 (31%)	23	0	(55)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	6	8 / 16 (50%)	160	NA	(NE)	NA	(NE)	0	(230)	0	(230)	0	(1,100)	0	(230)
TPH as motor oil	mg/kg	6	14 / 16 (88%)	700	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-11f

Constituent Concentrations in Soil Compared to Screening Values
AOC 28 – Pipeline Drip Legs
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-12a

Sample Results: Metals
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
PA-08	11/09/15	0 - 1	N	ND (2.2) *	4.8	290	ND (1.1) *	ND (1.1) *	0.82	26	10	62	19	ND (0.11) *	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.2) *	33	94
	01/12/16	2 - 3	N	ND (2.1) J*	4.4	330	ND (1) *	ND (1)	0.26	12	8.6 J	13 J	4.6 J	ND (0.1) *	ND (1)	9.1	ND (1) J	ND (1)	ND (2.1) *	35 J	44
	01/12/16	2 - 3	FD	ND (2.1) *	3.6	280	ND (1) *	ND (1)	0.23	14	6.8 J	5.5	9.3 J	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2.1) *	26 J	38
	01/12/16	5 - 6	N	ND (2) *	2.4	110	ND (1) *	ND (1)	ND (0.2)	7.1	5.9	6.2	1.7	ND (0.1) *	ND (1)	7.1	ND (1)	ND (1)	ND (2) *	21	21
	01/12/16	9 - 10	N	ND (2) *	1.5	140	ND (1) *	ND (1)	ND (0.2)	5.8	5.4	4.8	1.2	ND (0.1) *	ND (1)	5.2	ND (1)	ND (1)	ND (2) *	21	23
PA-OS1	04/06/11	9 - 9.5	N	ND (2) *	2.4	22	ND (1) *	ND (1)	ND (0.4) J	2.9	1.7	ND (2)	2.3	ND (0.1) J*	ND (1)	4.2	ND (1)	ND (1)	ND (2) *	9.2	6.9

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.
2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-12b

Sample Results: Contract Laboratory Program Inorganics
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Interim Screening Level[1] :	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
			Residential Regional Screening Levels[2] :	**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
			Residential DTSC-SL[3] :	**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
			Ecological Comparison Values[4] :	**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
			Background[5] :	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
PA-08	01/12/16	2 - 3	N	9,000	21,000	19,000	6,800	260	3,500	260	ND (0.207)
	01/12/16	2 - 3	FD	8,000	18,000	17,000	5,700	220	3,700 J	300 J	ND (0.209)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-12c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels [2] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
PA-08	11/09/15	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	59 J	94	230	ND (54)	87	120 J	ND (54)	140 J	ND (5.4)	ND (54)	ND (5.4)	57 J	110 J	57	840	150
	01/12/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (58)
	01/12/16	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (5)	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND	ND	ND (56)
	01/12/16	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
PA-OS1	04/06/11	0 - 0.5	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (5)	ND	ND	ND (5.8)
	04/06/11	2.5 - 3	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	04/06/11	5.5 - 6	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.7)	ND (5)	ND (5)	ND	ND	ND (5.8)
	04/06/11	9 - 9.5	N	ND (5)	5	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (6.1)	ND (5)	ND (5)	5	ND	5.8

TABLE 3-12c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-12d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Interim Screening Level [1]:	**320**
			Residential Regional Screening Levels [2]:	**320**
			Residential DTSC-SL [3]:	**NE**
			Ecological Comparison Values [4]:	**NE**
			Background [5]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloroform**
Category 1				
PA-08	01/12/16	2 - 3	N	11
	01/12/16	2 - 3	FD	11
	01/12/16	5 - 6	N	ND (8.7)
	01/12/16	9 - 10	N	ND (5.7)
PA-OS1	04/06/11	2.5 - 3	N	ND (5.5)
	04/06/11	5.5 - 6	N	ND (5.7)
	04/06/11	9 - 9.5	N	ND (6.1)

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.
Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-12e

Sample Results: Total Petroleum Hydrocarbons
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
PA-08	11/09/15	0 - 1	N	17	35
	01/12/16	2 - 3	N	ND (10)	ND (10)
	01/12/16	2 - 3	FD	ND (10)	ND (10)
	01/12/16	5 - 6	N	ND (10)	ND (10)
	01/12/16	9 - 10	N	ND (10)	ND (10)
PA-OS1	04/06/11	0 - 0.5	N	15	ND (10)
	04/06/11	2.5 - 3	N	14	ND (10)
	04/06/11	5.5 - 6	N	ND (10)	ND (10)
	04/06/11	9 - 9.5	N	ND (10)	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-12f

Sample Results: General Chemistry Parameters
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH Units)
			Interim Screening Level [1]:	NE
			Residential Regional Screening Levels [2]:	NE
			Residential DTSC-SL [3]:	NE
			Ecological Comparison Values [4]:	NE
			Background [5]:	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
PA-OS1	04/06/11	0 - 0.5	N	7.8
	04/06/11	2.5 - 3	N	7.9
	04/06/11	5.5 - 6	N	8.2
	04/06/11	9 - 9.5	N	8.7

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
meq/100g	milligrams per kilogram
mg/kg	milligrams per kilogram
mV	millivolts
ft bgs	feet below ground surface
µS/cm	microsiemens per centimeter
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-12g

Sample Results: Polychlorinated Biphenyls
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
PA-08	11/09/15	0 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	38	ND (18)	---	---	65
	01/12/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/12/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/12/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/12/16	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-OS1	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	5.5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	9 - 9.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	---	---	ND (32)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample

TABLE 3-12g

Sample Results: Polychlorinated Biphenyls
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-12h

Constituent Concentrations in Soil Compared to Screening Values
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Metals																
Antimony	mg/kg	2	0 / 5 (0%)	ND (2.2) ‡	NA	(NE)	0	(0.285)	0	(31)	NA	(NA)	0	(470)	0	(0.285)
Arsenic	mg/kg	2	5 / 5 (100%)	4.8	0	(11)	0	(11.4)	0	(0.11) *	NA	(NA)	0	(0.36) *	0	(11)
Barium	mg/kg	2	5 / 5 (100%)	330	0	(410)	0	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	0	(410)
Beryllium	mg/kg	2	0 / 5 (0%)	ND (1.1) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Cadmium	mg/kg	2	0 / 5 (0%)	ND (1.1) ‡	0	(1.1)	0	(0.0151) *	0	(5.2)	NA	(NA)	0	(7.3)	0	(1.1)
Chromium, Hexavalent	mg/kg	2	2 / 5 (40%)	0.82	0	(0.83)	0	(139.6)	0	(0.3)	NA	(NA)	0	(6.3)	0	(0.83)
Chromium, total	mg/kg	2	5 / 5 (100%)	26	0	(39.8)	0	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	0	(39.8)
Cobalt	mg/kg	2	5 / 5 (100%)	10	0	(12.7)	0	(13)	0	(23)	NA	(NA)	0	(350)	0	(12.7)
Copper	mg/kg	2	4 / 5 (80%)	62	1	(16.8)	1	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	1	(16.8)
Lead	mg/kg	2	5 / 5 (100%)	19	2	(8.39)	2	(0.0166) *	0	(80)	NA	(NA)	0	(320)	2	(8.39)
Mercury	mg/kg	2	0 / 5 (0%)	ND (0.11) ‡	NA	(NE)	0	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	0	(0.0125)
Nickel	mg/kg	2	5 / 5 (100%)	20	0	(27.3)	0	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	0	(27.3)
Thallium	mg/kg	2	0 / 5 (0%)	ND (2.2) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	2	5 / 5 (100%)	35	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	2	5 / 5 (100%)	94	1	(58)	1	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	1	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	1	1 / 1 (100%)	9,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	1	1 / 1 (100%)	21,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	1	1 / 1 (100%)	19,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	1	1 / 1 (100%)	6,800	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	1	1 / 1 (100%)	260	0	(402)	0	(220)	0	(1,800)	NA	(NA)	0	(6,900)	0	(402)
Potassium	mg/kg	1	1 / 1 (100%)	3,700	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	1	1 / 1 (100%)	300	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Volatile Organic Compounds																
Chloroform	µg/kg	2	1 / 6 (17%)	11	NA	(NE)	NA	(NE)	0	(320)	NA	(NA)	0	(1,400)	0	(320)
Polycyclic Aromatic Hydrocarbons																
2-Methyl naphthalene	µg/kg	2	1 / 8 (13%)	5	NA	(NE)	NA	(NE)	0	(240,000)	NA	(NA)	0	(3,000,000)	0	(240,000)
Benzo (a) anthracene	µg/kg	2	1 / 8 (13%)	59	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (a) pyrene	µg/kg	2	1 / 8 (13%)	94	NA	(NE)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Benzo (b) fluoranthene	µg/kg	2	1 / 8 (13%)	230	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (k) fluoranthene	µg/kg	2	1 / 8 (13%)	87	NA	(NE)	NA	(NE)	0	(11,000)	NA	(NA)	0	(210,000)	0	(11,000)
Chrysene	µg/kg	2	1 / 8 (13%)	120	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Fluoranthene	µg/kg	2	1 / 8 (13%)	140	NA	(NE)	NA	(NE)	0	(2,400,000)	NA	(NA)	0	(30,000,000)	0	(2,400,000)
Phenanthrene	µg/kg	2	1 / 8 (13%)	57	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
Pyrene	µg/kg	2	1 / 8 (13%)	110	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
PAH Low molecular weight	µg/kg	2	8 / 8 (100%)	57	1	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	2	8 / 8 (100%)	840	1	(267.4)	0	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	0	(1,160)
B(a)P Equivalent	µg/kg	2	2 / 8 (25%)	150	1	(55)	NA	(NE)	1	(110)	NA	(NA)	0	(2,100)	1	(110)
Polychlorinated biphenyls																
Aroclor 1254	µg/kg	2	1 / 8 (13%)	38	NA	(NE)	NA	(NE)	0	(240)	NA	(NA)	0	(970)	0	(240)
Total PCBs	µg/kg	2	1 / 8 (13%)	65	NA	(NE)	0	(204)	0	(230)	NA	(NA)	0	(940)	0	(204)

TABLE 3-12h

Constituent Concentrations in Soil Compared to Screening Values
AOC 31 – Former Teapot Dome Oil Pit
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (RSL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (CSL) [5]		Interim Screening Level (ISL) [6]	
					# of Exceedences [7]	(BK)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(RSL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(CSL)	# of Exceedences [8]	(ISL)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	2	3 / 8 (38%)	17	NA	(NE)	NA	(NE)	0	(230)	0	(230)	0	(1,100)	0	(230)
TPH as motor oil	mg/kg	2	1 / 8 (13%)	35	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg miligrams per kilogram
µg/kg micrograms per kilogram
ng/kg nanograms per kilogram
BK Background Value
CSL Commercial Screening Level
DTSC California Department of Toxic Substances Control
DTSC-SL DTSC Screening Level
ISL Interim Screening Level
NA not applicable
ND not detected in any of the samples
NE not established
RSL esidential screening level
RWQCB Regional Water Quality Control Board
SL screening level
USEPA United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-13a

Sample Results: Metals
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
UA2-300B-1	09/23/08	0 - 0.5	N	ND (2) *	14	290	ND (1) *	ND (1)	ND (0.42)	25	7.7	13	7.9	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	28	54
	09/23/08	0.5 - 1	N	ND (2) *	24	280	ND (2) *	ND (1)	ND (0.423)	28	9.1	14	5.8	ND (0.1) *	ND (2) *	19	ND (1)	ND (2)	ND (4) *	31	61
	10/23/08	2.5 - 3	N	ND (2) *	16	300	ND (2) *	ND (1)	ND (0.401)	25	8.8	13	5.6	ND (0.1) *	ND (2) *	18	ND (1)	ND (2)	ND (4) *	29	59
	10/23/08	5.5 - 6	N	ND (2) *	12	150	ND (1) *	ND (1)	ND (0.401)	17	6.7	10	3.2	ND (0.099) *	1.1	13	ND (1)	ND (1)	ND (2) *	22	48
UA2-300B-2	10/03/08	0 - 0.5	N	ND (2) *	8	220	ND (1) *	ND (1)	ND (0.404)	17	7	11	6.6	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	27	46
	10/03/08	0.5 - 1	N	ND (2) *	15	520	ND (2) *	ND (1)	ND (0.42)	33	10	15	4.3	ND (0.1) *	ND (2) *	22	ND (1)	ND (2)	ND (4) *	35	62
	10/03/08	2 - 3	N	ND (2) *	11	310	ND (2) *	ND (1)	ND (0.408)	34	11	11	3.4	ND (0.1) *	ND (2) *	23	ND (1)	ND (2)	ND (4) *	36	63
UA2-300B-3	10/03/08	0 - 0.5	N	ND (2) *	9.8	250	ND (2) *	ND (1)	ND (0.403)	21	7.9	11	5.3	ND (0.1) *	ND (2) *	16	ND (1)	ND (2)	ND (4) *	33	52
	10/03/08	0.5 - 1	N	ND (2) *	10	220	ND (2) *	ND (1)	ND (0.409)	26	10	13	6.3	ND (0.099) *	ND (2) *	19	ND (1)	ND (2)	ND (4) *	37	60
	10/03/08	0.5 - 1	FD	ND (2) *	10	220	ND (2) *	ND (1)	ND (0.407)	26	9.5	12	4.5	ND (0.1) *	ND (2) *	19	ND (1)	ND (2)	ND (4.1) *	35	58
	10/03/08	2 - 3	N	ND (2) *	12	180	ND (2) *	ND (1)	ND (0.409)	25	9.9	13	4	ND (0.1) *	ND (2) *	20	ND (1)	ND (2)	ND (4.1) *	34	65
	10/03/08	5 - 6	N	ND (2) *	14	890	ND (2) *	ND (1)	ND (0.409)	32	10	9.4	3.6	ND (0.1) *	ND (2) *	22	ND (1)	ND (2)	ND (4.1) *	37	58
UA2-300B-4	10/03/08	0 - 0.5	N	ND (2) *	9.1	230	ND (2) *	ND (1)	ND (0.405)	22	8.4	11	4.4	ND (0.1) *	ND (2) *	17	ND (1)	ND (2)	ND (4) *	33	53
	10/03/08	0.5 - 1	N	ND (2) *	11	190	ND (1) *	ND (1)	ND (0.408)	20	7.4	11	3.4	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	27	47
	10/03/08	2 - 3	N	ND (2) *	11	220	ND (2) *	ND (1)	ND (0.409)	28	11	15	3.4	ND (0.1) *	ND (2) *	21	ND (1)	ND (2)	ND (4.1) *	38	64
UA2-300B-5	10/03/08	0 - 0.5	N	ND (2) J*	8.4	290 J	ND (1) *	ND (1)	ND (0.405)	22	7	11	13	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	27	62
	10/03/08	0.5 - 1	N	ND (2) *	10	390	ND (2) *	ND (1)	ND (0.41)	33	11	11	3.9	ND (0.1) *	ND (2) *	24	ND (1)	ND (2)	ND (4.1) *	36	65
	10/03/08	2 - 3	N	ND (2) *	9.4	360	ND (2) *	ND (1)	ND (0.411)	35	11	12	3.4	ND (0.1) *	ND (2) *	25	ND (1)	ND (2)	ND (4.1) *	37	62
Category 3																					
TODT-1	04/16/96	0 - 4	N	ND (5) *	5.5	224	ND (0.5)	0.86	---	20	7.5	12	8.8	ND (0.2) *	ND (2.5) *	14	ND (0.5)	ND (1)	ND (5) *	37	53

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-13b

Sample Results: Contract Laboratory Program Inorganics
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level [1]:				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels [2]:				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background [5]:				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
UA2-300B-1	09/23/08	0 - 0.5	N	11,000	21,000	20,000	7,400	670	2,900	230	ND (1.05) *
UA2-300B-5	10/03/08	0 - 0.5	N	11,000	26,000	27,000	8,900	840	2,400	210	ND (1.01) *

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-13c

Sample Results: Polycyclic Aromatic Hydrocarbons
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2]:				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
Category 1																								
UA2-300B-1	09/23/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	09/23/08	0.5 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/23/08	2.5 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	ND (5)	11	6.5	5.8
	10/23/08	5.5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.3	6.2	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	11.5	6.1
UA2-300B-2	10/03/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/03/08	0.5 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
UA2-300B-3	10/03/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/03/08	0.5 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	0.5 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
UA2-300B-4	10/03/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/03/08	0.5 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
UA2-300B-5	10/03/08	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND	ND (5.8)
	10/03/08	0.5 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/03/08	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
Category 3																								
TODT-1	04/16/96	0 - 4	N	---	ND (8,000)	ND (8,000)	ND (8,000)	ND (8,000)	ND (8,000) *	ND (8,000) *	ND (8,000) *	ND (8,000)	ND (8,000)	ND (8,000)	ND (8,000) *	ND (8,000)	ND (8,000)	ND (8,000) *	ND (8,000) *	ND (8,000)	ND (8,000)	ND	ND	ND (9,200) *

TABLE 3-13c

Sample Results: Polycyclic Aromatic Hydrocarbons
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
JR	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-13d

Sample Results: Semivolatile and Volatile Organic Compounds
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Interim Screening Level [1]:	**500**	**2,870**
			Residential Regional Screening Levels [2]:	**6,300,000**	**39,000**
			Residential DTSC-SL [3]:	**NE**	**NE**
			Ecological Comparison Values [4]:	**500**	**2,870**
			Background [5]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4-Methylphenol**	**bis (2-ethylhexyl) phthalate**
Category 1					
UA2-300B-1	09/23/08	0 - 0.5	N	ND (330)	ND (330)
	09/23/08	0.5 - 1	N	ND (330)	ND (330)
	10/23/08	2.5 - 3	N	460	1,300
	10/23/08	5.5 - 6	N	ND (330)	ND (330)
UA2-300B-2	10/03/08	0 - 0.5	N	ND (330)	ND (330)
	10/03/08	0.5 - 1	N	ND (330)	ND (330)
	10/03/08	2 - 3	N	ND (330)	ND (330)
UA2-300B-3	10/03/08	0 - 0.5	N	ND (330)	ND (330)
	10/03/08	0.5 - 1	N	ND (330)	ND (330)
	10/03/08	0.5 - 1	FD	ND (330)	ND (330)
	10/03/08	2 - 3	N	ND (330)	ND (330)
	10/03/08	5 - 6	N	ND (330)	ND (330)
UA2-300B-4	10/03/08	0 - 0.5	N	ND (330)	ND (330)
	10/03/08	0.5 - 1	N	ND (330)	ND (330)
	10/03/08	2 - 3	N	ND (330)	ND (330)
UA2-300B-5	10/03/08	0 - 0.5	N	ND (330)	ND (330)
	10/03/08	0.5 - 1	N	ND (330)	ND (330)
	10/03/08	2 - 3	N	ND (340)	ND (340)
Category 3					
TODT-1	04/16/96	0 - 4	N	ND (8,000) *	ND (20,000) *

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-13e

Sample Results: Total Petroleum Hydrocarbons
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)		
			Interim Screening Level[1] :	**NE**	**230**	**11,000**
			Residential Regional Screening Levels[2] :	**NE**	**NE**	**NE**
			Residential DTSC-SL[3] :	**NE**	**NE**	**NE**
			RWQCB Environmental Screening Levels[4] :	**NE**	**230**	**11,000**
			Ecological Comparison Values[5] :	**NE**	**NE**	**NE**
			Background[6] :	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Total Recoverable Hydrocarbons**	**TPH as diesel**	**TPH as motor oil**
UA2-300B-1	09/23/08	0 - 0.5	N	---	ND (10)	32.1
	09/23/08	0.5 - 1	N	---	ND (10)	33.6
	10/23/08	2.5 - 3	N	---	140	902
	10/23/08	5.5 - 6	N	---	ND (10)	60.4
UA2-300B-2	10/03/08	0 - 0.5	N	---	ND (10)	15.1 J
	10/03/08	0.5 - 1	N	---	ND (10)	12.2 J
	10/03/08	2 - 3	N	---	ND (10)	13 J
UA2-300B-3	10/03/08	0 - 0.5	N	---	ND (10)	ND (10)
	10/03/08	0.5 - 1	N	---	ND (10)	ND (10)
	10/03/08	0.5 - 1	FD	---	ND (10)	ND (10)
	10/03/08	2 - 3	N	---	ND (10)	ND (10)
	10/03/08	5 - 6	N	---	ND (10) J	ND (10) J
UA2-300B-4	10/03/08	0 - 0.5	N	---	ND (10)	ND (10)
	10/03/08	0.5 - 1	N	---	ND (10)	ND (10)
	10/03/08	2 - 3	N	---	ND (10)	ND (10)
UA2-300B-5	10/03/08	0 - 0.5	N	---	10.5	59.9 J
	10/03/08	0.5 - 1	N	---	ND (10)	29.7 J
	10/03/08	2 - 3	N	---	ND (10)	11.2 J
HDTP	12/02/94	1.2	N	---	---	100
	12/02/94	2	N	---	---	13
TODT-1	04/16/96	0 - 4	N	68,000	---	---

TABLE 3-13e

Sample Results: Total Petroleum Hydrocarbons
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
RWQCB	Regional Water Quality Control Board
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

3 California Regional Water Quality Control Board (RWQCB). 2016. San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final. February.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detect Chemicals in Soil". July 1.

5 Background values have not been established for TPHs.

TABLE 3-13f

Sample Results: Pesticides
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1]:				2.1	2.1	2.1	39	86	440	300	300	5	470,000	470,000	470,000	19,000	19,000	19,000	300	440	130	70	320,000	490
Residential Regional Screening Levels [2]:				1,900	2,000	1,900	39	86	1,700	300	300	34	470,000	470,000	470,000	19,000	19,000	19,000	570	1,700	130	70	320,000	490
Residential DTSC-SL [3]:				NE	NE	NE	NE	300	440	300	300	NE	NE	NE	NE	NE	NE	NE	300	440	NE	NE	NE	NE
Ecological Comparison Values [4]:				2.1	2.1	2.1	NE	NE	470	NE	NE	5	NE	NE	NE	NE	NE	NE	NE	470	NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
UA2-300B-1	09/23/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
UA2-300B-5	10/03/08	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
Category 3																								
TODT-1	04/16/96	0 - 4	N	ND (8,000) *	ND (8,000) *	ND (8,000) *	ND (8,000) *	ND (8,000) *	---	ND (8,000) *	ND (8,000) *	ND (8,000) *	ND (8,000)	ND (8,000)	ND (8,000)	ND (8,000)	ND (8,000)	---	ND (8,000) *	---	ND (8,000) *	ND (8,000) *	---	---

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1.

5 Background values have not been established for pesticides.

TABLE 3-13g

Sample Results: Polychlorinated Biphenyls
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1]:				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2]:				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
UA2-300B-1	09/23/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	09/23/08	0.5 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/23/08	2.5 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/23/08	5.5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
UA2-300B-2	10/03/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	0.5 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
UA2-300B-3	10/03/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	0.5 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	0.5 - 1	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
UA2-300B-4	10/03/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	0.5 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
UA2-300B-5	10/03/08	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	0.5 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
	10/03/08	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND
Category 3													
TODT-1	04/16/96	0 - 4	N	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	---	---	ND

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.
Results greater than the interim screening level are circled.

TABLE 3-13g

Sample Results: Polychlorinated Biphenyls
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
ND	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 Background values have not been established for polychlorinated biphenys.

TABLE 3-13h

Constituent Concentrations in Soil Compared to Screening Values
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [7]	(BK)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (RSL) [3] # of Exceedences [8]	(RSL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (CSL) [5] # of Exceedences [8]	(CSL)	Interim Screening Level (ISL) [6] # of Exceedences [8]	(ISL)
Metals																
Antimony	mg/kg	5	0 / 17 (0%)	ND (2) ‡	NA	(NE)	0	(0.285)	0	(31)	NA	(NA)	0	(470)	0	(0.285)
Arsenic	mg/kg	5	17 / 17 (100%)	24	7	(11)	7	(11.4)	7	(0.11) *	NA	(NA)	7	(0.36) *	7	(11)
Barium	mg/kg	5	17 / 17 (100%)	890	2	(410)	2	(330) *	0	(15,000)	NA	(NA)	0	(220,000)	2	(410)
Beryllium	mg/kg	5	0 / 17 (0%)	ND (2) ‡	0	(0.672)	0	(23.3)	0	(15)	NA	(NA)	0	(210)	0	(0.672)
Chromium, total	mg/kg	5	17 / 17 (100%)	35	0	(39.8)	0	(36.3) *	0	(36,000)	NA	(NA)	0	(170,000)	0	(39.8)
Cobalt	mg/kg	5	17 / 17 (100%)	11	0	(12.7)	0	(13)	0	(23)	NA	(NA)	0	(350)	0	(12.7)
Copper	mg/kg	5	17 / 17 (100%)	15	0	(16.8)	0	(20.6)	0	(3,100)	NA	(NA)	0	(47,000)	0	(16.8)
Lead	mg/kg	5	17 / 17 (100%)	13	1	(8.39)	1	(0.0166) *	0	(80)	NA	(NA)	0	(320)	1	(8.39)
Mercury	mg/kg	5	0 / 17 (0%)	ND (0.1) ‡	NA	(NE)	0	(0.0125)	0	(1)	NA	(NA)	0	(4.5)	0	(0.0125)
Molybdenum	mg/kg	5	1 / 17 (5.9%)	1.1	0	(1.37)	0	(2.25)	0	(390)	NA	(NA)	0	(5,800)	0	(1.37)
Nickel	mg/kg	5	17 / 17 (100%)	25	0	(27.3)	0	(0.607) *	0	(490)	NA	(NA)	0	(3,100)	0	(27.3)
Thallium	mg/kg	5	0 / 17 (0%)	ND (4.1) ‡	NA	(NE)	0	(2.32)	0	(0.78)	NA	(NA)	0	(12)	0	(0.78)
Vanadium	mg/kg	5	17 / 17 (100%)	38	0	(52.2)	0	(13.9) *	0	(390)	NA	(NA)	0	(1,000)	0	(52.2)
Zinc	mg/kg	5	17 / 17 (100%)	65	10	(58)	10	(0.164) *	0	(23,000)	NA	(NA)	0	(350,000)	10	(58)
Contract Laboratory Program Inorganics																
Aluminum	mg/kg	2	2 / 2 (100%)	11,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NA)	0	(1,100,000)	0	(16,400)
Calcium	mg/kg	2	2 / 2 (100%)	26,000	0	(66,500)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(66,500)
Iron	mg/kg	2	2 / 2 (100%)	27,000	0	(29,303)	NA	(NE)	0	(55,000)	NA	(NA)	0	(820,000)	0	(29,303)
Magnesium	mg/kg	2	2 / 2 (100%)	8,900	0	(12,100)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(12,100)
Manganese	mg/kg	2	2 / 2 (100%)	840	2	(402)	2	(220)	0	(1,800)	NA	(NA)	0	(6,900)	2	(402)
Potassium	mg/kg	2	2 / 2 (100%)	2,900	0	(4,400)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(4,400)
Sodium	mg/kg	2	2 / 2 (100%)	230	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NA)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	2	0 / 2 (0%)	ND (1.05) ‡	NA	(NE)	0	(0.9)	0	(23)	NA	(NA)	0	(150)	0	(0.9)
Semivolatile Organic Compounds																
4-Methylphenol	µg/kg	5	1 / 17 (5.9%)	460	NA	(NE)	0	(500)	0	(6,300,000)	NA	(NA)	0	(82,000,000)	0	(500)
bis (2-ethylhexyl) phthalate	µg/kg	5	1 / 17 (5.9%)	1,300	NA	(NE)	0	(2,870)	0	(39,000)	NA	(NA)	0	(160,000)	0	(2,870)
Polycyclic Aromatic Hydrocarbons																
Benzo (b) fluoranthene	µg/kg	5	1 / 17 (5.9%)	5.3	NA	(NE)	NA	(NE)	0	(1,100)	NA	(NA)	0	(21,000)	0	(1,100)
Benzo (ghi) perylene	µg/kg	5	1 / 17 (5.9%)	6.2	NA	(NE)	NA	(NE)	0	(1,800,000)	NA	(NA)	0	(23,000,000)	0	(1,800,000)
Chrysene	µg/kg	5	1 / 17 (5.9%)	6.5	NA	(NE)	NA	(NE)	0	(110,000)	NA	(NA)	0	(2,100,000)	0	(110,000)
Phenanthrene	µg/kg	5	1 / 17 (5.9%)	11	NA	(NE)	NA	(NE)	0	(18,000,000)	NA	(NA)	0	(230,000,000)	0	(18,000,000)
PAH Low molecular weight	µg/kg	5	17 / 17 (100%)	11	0	(37.6)	0	(10,000)	NA	(NE)	NA	(NA)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	5	17 / 17 (100%)	11.5	0	(267.4)	0	(1,160)	NA	(NE)	NA	(NA)	NA	(NE)	0	(1,160)
B(a)P Equivalent	µg/kg	5	2 / 17 (12%)	6.1	0	(55)	NA	(NE)	0	(110)	NA	(NA)	0	(2,100)	0	(110)
Total Petroleum Hydrocarbons																
TPH as diesel	mg/kg	5	2 / 17 (12%)	140	NA	(NE)	NA	(NE)	0	(230)	0	(230)	0	(1,100)	0	(230)
TPH as motor oil	mg/kg	5	10 / 17 (59%)	902	NA	(NE)	NA	(NE)	0	(11,000)	0	(11,000)	0	(140,000)	0	(11,000)

TABLE 3-13h

Constituent Concentrations in Soil Compared to Screening Values
UA-2 – Former 300B Pipeline Drip Tank Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background threshold value because it is greater than the respective screening level.
‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RSL	esidential screening level
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil" July 1

3 Residential screening level - the lower of the residential DTSC-SL and USEPA regional screening level is used.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

5 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used.

6 For metals, the ISL is background value. If background value is not available then the ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value. For TPH, ISL is the RWQCB ESL. For dioxin/furan TEQ values, the ISL is the DTSC-SL unless the background value is higher. For all other analytes, ISL is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

7 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

8 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-14a
Sample Results: Metals
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
SWMU5-1	12/08/15	0 - 1	N	ND (2)	2.3	84	ND (1)	ND (1)	0.41	13	4	8.2	4.2	ND (0.1)	ND (1)	8.8	ND (1)	ND (1)	ND (2)	18	22
	12/08/15	2 - 3	N	ND (2.1)	2.2	88	ND (1)	ND (1)	0.4	14	5.7	7.4	7.8	ND (0.1)	ND (1)	9.2	ND (1)	ND (1)	ND (2.1)	22	25
SWMU5-2	12/07/15	0 - 0.5	N	ND (2.1)	3.3	100	ND (1)	ND (1)	ND (0.21)	11	3.8	7.6	4.7	ND (0.1)	ND (1)	7.6	ND (1)	ND (1)	ND (2.1)	20	23
	12/07/15	2 - 3	N	ND (2.1)	2.6	180	ND (1)	ND (1)	0.64	32	6.3	13	6.7	ND (0.1) J	ND (1)	16	ND (1)	ND (1)	ND (2.1)	29	44
	12/07/15	2 - 3	FD	ND (2.1)	2.7	180	ND (1)	ND (1)	0.73	36	6.5	13	8	0.98 J	ND (1)	15	ND (1)	ND (1)	ND (2.1)	28	46
	01/12/17	5 - 6	N	ND (2.1)	3.1	88	ND (1.1)	ND (1.1)	---	32	7.2	13	3.1	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	29	43
Category 2																					
EDB-4	12/09/88	2.5 - 3	N	ND (0.3)	1.63	120	ND (1)	ND (0.5)	ND (1)	23	6.4	ND (3)	**17**	ND (0.002)	ND (1)	12	ND (0.5)	ND (1)	ND (5)	18	34
EDB-5	12/09/88	2.5 - 3	N	ND (0.3)	1.21	110	ND (1)	ND (0.5)	ND (1)	37	8.2	3.8	4.4	0.016	ND (1)	9.3	ND (0.5)	ND (1)	ND (5)	24	53
	12/09/88	2.5 - 3	FD	ND (0.3)	1.14	120	ND (1)	ND (0.5)	ND (1)	**47**	8.3	1.8	2.8	0.03	ND (1)	9.1	ND (0.5)	ND (1)	ND (5)	29	56
WDB-4	12/09/88	3 - 0	N	0.3	1.84	210	ND (0.05)	0.5	ND (1)	30	8.3	8.1	5.2	0.019	0.11	11	ND (0.1)	ND (0.05)	ND (0.3)	20	**100**
	12/09/88	3 - 0	FD	ND (0.3)	1.3	78	ND (1)	0.2	ND (1)	18	2.3	3.1	4	0.012	ND (1)	6.5	ND (0.5)	ND (1)	ND (5)	8.1	**93**
WDB-5	12/09/88	3 - 0	N	ND (0.3)	1.29	110	ND (1)	ND (0.5)	ND (1)	22	7.1	ND (3)	**15**	0.014	ND (1)	7.5	ND (0.5)	ND (1)	ND (5)	21	33

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-14b

Sample Results: Contract Laboratory Program Inorganics
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
SWMU5-1	12/08/15	0 - 1	N	5,200	15,000	9,100	4,100	140	1,500	450	ND (0.206)
	12/08/15	2 - 3	N	6,600	30,000	15,000	4,700	160	1,700	180	ND (0.209)
SWMU5-2	01/12/17	5 - 6	N	9,500	28,000	21,000	7,500	260	2,000	590	ND (0.217) J

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded^. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-14c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
			Commercial Screening Level[1]:	73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
			Background[2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
SWMU5-1	12/08/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (51)	ND (51)	ND (51)	ND (51)	9.5	ND (51)	15	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	14	**57**
	12/08/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	16	ND (5.2)	ND (52)	ND (4.7)	ND (5.2)	15	**60**
SWMU5-2	12/07/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (520)	ND (520)	ND (520)	ND (520)	ND (52)	ND (520)	23 J	ND (5.2)	ND (520)	ND (5.2)	5.8 J	22 J	**580**
	12/07/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (520)	ND (520)	ND (520)	ND (520)	ND (52)	ND (520)	20 J	ND (5.2)	ND (520)	ND (4.7)	ND (5.2) J	18 J	**580**
	12/07/15	2 - 3	FD	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (520)	ND (5,200) *	ND (5,200)	ND (5,200)	ND (5,200)	ND (520)	ND (5,200) *	640 J	ND (52)	ND (5,200)	ND (4.6)	280 J	560 J	**5,800**
	01/12/17	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	11 J	14	31	7.9	6.5	13	ND (5.4)	19	ND (5.4)	7.2	ND (5.4)	5.7	18	22
	01/12/17	5 - 6	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	13	ND (5.4)	ND (5.4)	6.5	ND (5.4)	7.6	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.9	10
	01/12/17	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.7 J	9.7	23	ND (5.2)	5.9	11	ND (5.2)	15	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	15	16

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-14d

Sample Results: Total Petroleum Hydrocarbons
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
SWMU5-1	12/08/15	0 - 1	N	46	360
	12/08/15	2 - 3	N	38	450
SWMU5-2	12/07/15	0 - 0.5	N	74	500
	12/07/15	2 - 3	N	43	430
	12/07/15	2 - 3	FD	37	360

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-14e

Sample Results: General Chemistry Parameters
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry	
				(mg/kg)	(pH units)
			Comercial Regional Screening Levels [1]:	**47,000**	**NE**
			DTSC-SL [2]:	**NE**	**NE**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Fluoride**	**pH**
Category 2					
EDB-4	12/09/88	2.5 - 3	N	504	11.25
EDB-5	12/09/88	2.5 - 3	N	791	10.85
	12/09/88	2.5 - 3	FD	621	10.71
WDB-4	12/09/88	3 - 0	N	310	10.35
	12/09/88	3 - 0	FD	130	10.21
WDB-5	12/09/88	3 - 0	N	528	10.53

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-14f

Sample Results: Pesticides
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				**9,600**	**9,300**	**8,500**	**180**	**360**	**1,500**	**370**	**370**	**140**	**7,000,000**	**7,000,000**	**7,000,000**	**250,000**	**250,000**	**250,000**	**370**	**1,500**	**630**	**330**	**4,100,000**	**2,100**
Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
SWMU5-2	01/12/17	5 - 6	N	ND (2.1)	ND (2.1)	5.6	ND (1.1)	ND (1.1)	1.7	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	2.2	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-14g

Sample Results: Polychlorinated Biphenyls
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Commercial Screening Level[1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**940**
			Background[2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
SWMU5-2	12/07/15	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	34 R
	12/07/15	2 - 3	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	34 R
	01/12/17	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	27	ND (18)	54
	01/12/17	5 - 6	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	27	ND (18)	54
	01/12/17	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-14h

Sample Results: Dioxins and Furans
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
		Commercial Screening Level [1]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
SWMU5-2	12/07/15	0 - 0.5	N	1,600 J	84 J	ND (5) J	ND (4.4) J	ND (7.1) J	32 J	ND (3.3) J	9.8 J	ND (2.3) J	3.5 J	2.4 J	ND (190) J	4.4 J	ND (0.65) J	ND (1.7) J	19,000 J	150 J	**42**
	12/07/15	2 - 3	N	1,300 J	86 J	6.3 J	6.2 J	ND (0.86) J	28 J	6.6 J	12 J	ND (0.99) J	ND (3.2) J	3 J	ND (100) J	2.8 J	ND (0.23) J	1.7 J	12,000 J	110 J	**31**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-14i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Dioxins and Furans										
TEQ Human	ng/kg	1	2 / 2 (100%)	42	2	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	6	1 / 9 (11%)	0.3	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	6	9 / 9 (100%)	3.3	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	6	9 / 9 (100%)	210	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	6	0 / 9 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	6	1 / 9 (11%)	0.5	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	6	3 / 8 (38%)	0.73	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	6	9 / 9 (100%)	47	1	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	6	9 / 9 (100%)	8.3	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	6	7 / 9 (78%)	13	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	6	9 / 9 (100%)	17	2	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	6	4 / 9 (44%)	0.98	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	6	1 / 9 (11%)	0.11	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	6	9 / 9 (100%)	16	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	6	0 / 9 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	6	0 / 9 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	6	0 / 9 (0%)	ND (5) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	6	9 / 9 (100%)	29	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	6	9 / 9 (100%)	100	1	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	3 / 3 (100%)	9,500	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	3 / 3 (100%)	30,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	2	3 / 3 (100%)	21,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	3 / 3 (100%)	7,500	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	2	3 / 3 (100%)	260	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	2	3 / 3 (100%)	2,000	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-14i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	2	3 / 3 (100%)	590	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	2	0 / 3 (0%)	ND (0.217)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	2	3 / 6 (50%)	11	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	2	2 / 6 (33%)	9.7	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	2	2 / 6 (33%)	31	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	2	1 / 6 (17%)	7.9	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	2	2 / 6 (33%)	6.5	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	2	3 / 6 (50%)	11	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	2	6 / 6 (100%)	640	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	2	1 / 6 (17%)	7.2	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	2	3 / 6 (50%)	280	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	2	6 / 6 (100%)	560	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	2	6 / 6 (100%)	5,800	4	(55)	NA	(NA)	1	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	1	2 / 4 (50%)	17	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	1	2 / 4 (50%)	34	NA	(NE)	NA	(NA)	0	(830)
Aroclor 1232	µg/kg	1	2 / 4 (50%)	17	NA	(NE)	NA	(NA)	0	(720)
Aroclor 1242	µg/kg	1	2 / 4 (50%)	17	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1248	µg/kg	1	2 / 4 (50%)	17	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	1	3 / 4 (75%)	27	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	1	2 / 4 (50%)	17	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	1	3 / 4 (75%)	54	NA	(NE)	NA	(NA)	0	(940)
Pesticides										
4,4-DDT	µg/kg	1	1 / 1 (100%)	5.6	NA	(NE)	NA	(NA)	0	(8,500)
alpha-Chlordane	µg/kg	1	1 / 1 (100%)	1.7	NA	(NE)	NA	(NA)	0	(1,500)
gamma-Chlordane	µg/kg	1	1 / 1 (100%)	2.2	NA	(NE)	NA	(NA)	0	(1,500)

TABLE 3-14i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences [4]	(BK)	# of Exceedences [5]	(ESL)	# of Exceedences [5]	(CSL)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	2	4 / 4 (100%)	74	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	2	4 / 4 (100%)	500	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	2	0 / 2 (0%)	ND (0.97)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-14i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 5 – Sludge Drying Beds
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-15a
Sample Results: Metals
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																		
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**NE**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic** [3]	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Trivalent Chromium**	**Vanadium**	**Zinc**
Category 1																						
SWMU6-1	12/07/15	0 - 1	N	ND (2.1)	2.9	110	ND (1)	ND (1)	0.23	11	4.4	8	4.4	ND (0.1)	ND (1)	9.9	ND (1)	ND (1)	ND (2.1)	---	19	22
	12/07/15	2 - 3	N	ND (2.1)	2.4	140	ND (1)	ND (1)	0.64	29	8.6	12	4.8	1.2	ND (1)	15	ND (1)	ND (1)	ND (2.1)	---	31	44
	12/07/15	5 - 6	N	ND (2.1)	2.1	180	ND (1)	ND (1)	**0.91**	**43**	6.2	10	4.3	0.18	ND (1)	16	ND (1)	ND (1)	ND (2.1)	---	24	44
	01/12/17	9 - 10	N	ND (2.1)	3.5	110	ND (1)	ND (1)	---	**90**	6.8	12	5	ND (0.1)	1.1	12	ND (1) J	ND (1)	ND (2.1)	---	30	**71**
Category 2																						
CRT-4	11/15/89	7.5	N	ND (0.3)	4.3	165	ND (1)	ND (0.5)	**1**	**120**	10	14	6	ND (0.002)	ND (1)	19	ND (0.5)	ND (1)	ND (5)	---	25	**96**
	11/15/89	7.5	FD	---	---	---	---	---	ND (1)	**43**	---	8.3	---	---	---	8.1	---	---	---	---	---	**59**
	11/15/89	8	N	ND (0.3)	1.7	103	ND (1)	ND (0.5)	ND (1)	23	9	7	2	ND (0.002)	ND (1)	14	ND (0.5)	ND (1)	ND (5)	---	23	47
	11/15/89	8.5	N	ND (0.3)	2.5	168	ND (1)	ND (0.5)	ND (1)	21	10	8	3	ND (0.002)	ND (1)	18	ND (0.5)	ND (1)	ND (5)	---	24	49
	11/15/89	12 - 12.5	N	ND (1)	1.9	56	0.1	0.2	ND (1)	**43**	3	8.3	1.9	ND (0.02)	0.67	8.1	ND (0.1)	ND (0.05)	ND (1)	43	14	**59**

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-15b

Sample Results: Contract Laboratory Program Inorganics
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
SWMU6-1	12/07/15	0 - 1	N	5,400	15,000	11,000	4,700	250	1,100	480	ND (0.205)
	12/07/15	2 - 3	N	10,000	27,000	20,000	8,000	240	2,300	600	ND (0.21) J
	12/07/15	5 - 6	N	7,600	21,000	15,000	6,500	200	1,700	470	ND (0.209)
	01/12/17	9 - 10	N	8,200	19,000	17,000	6,500	250	2,400 J	450 J	ND (0.207) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-15c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																			
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																							
SWMU6-1	12/07/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	6.8 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	6.5 J	**59**
	12/07/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.3	ND (52)	ND (52)	ND (52)	ND (52)	9	ND (52)	14	ND (5.2)	ND (52)	ND (4.4)	ND (5.2)	13	**58**
	12/07/15	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8	9	17	ND (5.2)	7	12	ND (5.2)	20	ND (5.2)	ND (5.2)	ND (4.7)	ND (5.2)	21	14
	01/12/17	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	14 J	18	39	7	11	19	ND (5.2)	27	ND (5.2)	7	ND (5.2)	8.7	27	27
	01/12/17	9 - 10	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	15 J	19	44	7.3	13	21	ND (5.2)	32	ND (5.2)	7	ND (5.2)	11	32	28

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-15d

Sample Results: Total Petroleum Hydrocarbons

SWMU 6 – Chromate Reduction Tank

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
SWMU6-1	12/07/15	0 - 1	N	42	320
	12/07/15	2 - 3	N	ND (10)	45
	12/07/15	5 - 6	N	ND (10)	35

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-15e

Sample Results: General Chemistry Parameters
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry		
				(mg/kg)	(pH units)	(µS/cm)
Comercial Regional Screening Levels [1]:				**47,000**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Fluoride**	**pH**	**Specific conductance**
Category 2						
CRT-4	11/15/89	7.5	N	380	8.42	170
	11/15/89	7.5	FD	---	10.01	---
	11/15/89	8	N	490	9.03	65
	11/15/89	8.5	N	400	9.52	45
	11/15/89	12 - 12.5	N	650	10.01	380

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-15f
Sample Results: Pesticides
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
SWMU6-1	01/12/17	9 - 10	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-15g

Sample Results: Polychlorinated Biphenyls
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Commercial Screening Level [1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**940**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
SWMU6-1	01/12/17	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	150	ND (17)	175.5
	01/12/17	9 - 10	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	180	ND (17)	205.5

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-15h

Sample Results: Dioxins and Furans
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
		Commercial Screening Level [1]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
SWMU6-1	01/12/17	9 - 10	N	9,400	1,500	84	48	94	320	70	100	26	21	12 J	ND (2,700)	23	1.7 J	ND (0.15)	150,000	3,000	**390**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-15i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Dioxins and Furans										
TEQ Human	ng/kg	1	1 / 1 (100%)	390	1	(5.58)	NA	(NA)	1	(220)
Metals										
Antimony	mg/kg	2	0 / 8 (0%)	ND (2.1) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	2	8 / 8 (100%)	4.3	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	2	8 / 8 (100%)	180	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	2	1 / 8 (13%)	0.1	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	2	1 / 8 (13%)	0.2	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	2	4 / 7 (57%)	1	2	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	2	8 / 8 (100%)	120	4	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	2	8 / 8 (100%)	10	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	2	8 / 8 (100%)	14	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	2	8 / 8 (100%)	6	0	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	2	2 / 8 (25%)	1.2	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	2	2 / 8 (25%)	1.1	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	2	8 / 8 (100%)	19	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	2	0 / 8 (0%)	ND (1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	2	0 / 8 (0%)	ND (1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	2	0 / 8 (0%)	ND (5) ‡	NA	(NE)	NA	(NA)	0	(12)
Trivalent Chromium	mg/kg	1	1 / 1 (100%)	43	NA	(NE)	NA	(NA)	NA	(NE)
Vanadium	mg/kg	2	8 / 8 (100%)	31	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	2	8 / 8 (100%)	96	3	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	4 / 4 (100%)	10,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	4 / 4 (100%)	27,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	4 / 4 (100%)	20,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	4 / 4 (100%)	8,000	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	4 / 4 (100%)	250	0	(402)	NA	(NA)	0	(6,900)

TABLE 3-15i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Contract Laboratory Program Inorganics										
Potassium	mg/kg	1	4 / 4 (100%)	2,400	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	1	4 / 4 (100%)	600	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 4 (0%)	ND (0.21)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	1	3 / 4 (75%)	15	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	1	2 / 4 (50%)	19	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	1	2 / 4 (50%)	44	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	1	1 / 4 (25%)	7.3	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	1	2 / 4 (50%)	13	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	1	3 / 4 (75%)	21	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	1	4 / 4 (100%)	32	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	1	1 / 4 (25%)	7	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	1	1 / 4 (25%)	8.7	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	1	4 / 4 (100%)	32	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	1	4 / 4 (100%)	59	2	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	1	1 / 1 (100%)	180	NA	(NE)	NA	(NA)	0	(970)
Total PCBs	µg/kg	1	1 / 1 (100%)	205.5	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	1	1 / 3 (33%)	42	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	1	3 / 3 (100%)	320	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	1	0 / 2 (0%)	ND (0.99)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-15i

Constituent Concentrations in Soil Compared to Screening Values
SWMU 6 – Chromate Reduction Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. "San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final." Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-16a
Sample Results: Metals
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
SWMU8-1	12/09/15	0 - 1	N	ND (2.2)	2.9	62	ND (1.1)	ND (1.1)	ND (0.22)	**54**	12	**21**	2.9	ND (0.11)	ND (1.1)	**39**	ND (1.1)	ND (1.1)	ND (2.2)	47	45
	12/09/15	2 - 3	N	ND (2.2)	2.4	160	ND (1.1)	ND (1.1)	ND (0.22)	**51**	**13**	**18**	2.3	ND (0.11)	ND (1.1)	**40**	ND (1.1)	ND (1.1)	ND (2.2)	**54**	43
Category 2																					
PPT-4	02/08/89	2	N	ND (0.3)	1.1	65	ND (1)	ND (0.5)	ND (1)	32	**13**	**19**	5	0.02	ND (1)	**33**	ND (0.5)	ND (1)	ND (5)	41	44
	02/08/89	2	FD	ND (0.3)	1.2	65	ND (1)	ND (0.5)	ND (1)	29	9	15	4	0.027	ND (1)	26	ND (0.5)	ND (1)	ND (5)	32	36
	02/08/89	3	N	ND (0.3)	1.3	50	ND (1)	0.5	ND (1)	26	10	16	5	0.007	ND (1)	25	ND (0.5)	ND (1)	ND (5)	38	44

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-16b

Sample Results: Contract Laboratory Program Inorganics
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Commercial Screening Level [1]:				**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
Background [2]:				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
SWMU8-1	12/09/15	0 - 1	N	16,000	36,000	**31,000**	**13,000**	290	2,900	410	ND (0.217)
	12/09/15	2 - 3	N	**18,000**	39,000	**38,000**	**15,000**	330	3,200	490	ND (0.218)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-16c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
SWMU8-1	12/09/15	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	7.5	**60**
	12/09/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.8)	ND (5.4)	ND (5.4)	ND (6.2)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-16d

Sample Results: Total Petroleum Hydrocarbons
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
SWMU8-1	12/09/15	0 - 1	N	130	220
	12/09/15	2 - 3	N	ND (11)	ND (11)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-16e

Sample Results: General Chemistry Parameters
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry	
				(mg/kg)	(pH units)
			Comercial Regional Screening Levels [1]:	**47,000**	**NE**
			DTSC-SL [2]:	**NE**	**NE**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Fluoride**	**pH**
Category 2					
PPT-4	02/08/89	2	N	636	8.68
	02/08/89	2	FD	664	8.74
	02/08/89	3	N	576	9.34

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-16f

Sample Results: Dioxins and Furans
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
SWMU8-1	12/09/15	0 - 1	N	39 J	ND (6.3) J	ND (0.38) J	ND (0.28) J	ND (0.43) J	ND (0.94) J	ND (0.41) J	ND (0.5) J	ND (0.5) J	ND (0.26) J	ND (0.21) J	ND (7) J	ND (0.18) J	ND (0.14) J	ND (0.13) J	440 J	ND (14) J	1.3
	12/09/15	2 - 3	N	34 J	ND (4.4) J	ND (0.45) J	ND (0.2) J	ND (0.24) J	ND (0.2) J	ND (0.23) J	ND (0.44) J	ND (0.27) J	ND (0.15) J	ND (0.11) J	ND (6.2) J	ND (0.11) J	ND (0.11) J	ND (0.099) J	350 J	10 J	1

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-16g

Constituent Concentrations in Soil Compared to Screening Values
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	1	2 / 2 (100%)	1.3	0	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	2	0 / 4 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	2	4 / 4 (100%)	2.9	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	2	4 / 4 (100%)	160	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	2	0 / 4 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	2	1 / 4 (25%)	0.5	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	2	0 / 4 (0%)	ND (1) ‡	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	2	4 / 4 (100%)	54	2	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	2	4 / 4 (100%)	13	2	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	2	4 / 4 (100%)	21	3	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	2	4 / 4 (100%)	5	0	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	2	2 / 4 (50%)	0.027	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	2	0 / 4 (0%)	ND (1.1)	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	2	4 / 4 (100%)	40	3	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	2	0 / 4 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	2	0 / 4 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	2	0 / 4 (0%)	ND (5) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	2	4 / 4 (100%)	54	1	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	2	4 / 4 (100%)	45	0	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	2 / 2 (100%)	18,000	1	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	2 / 2 (100%)	39,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	2 / 2 (100%)	38,000	2	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	2 / 2 (100%)	15,000	2	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	2 / 2 (100%)	330	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	2 / 2 (100%)	3,200	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-16g

Constituent Concentrations in Soil Compared to Screening Values
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	1	2 / 2 (100%)	490	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.218)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Pyrene	µg/kg	1	1 / 2 (50%)	7.5	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	1	1 / 2 (50%)	60	1	(55)	NA	(NA)	0	(2,100)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	1	1 / 2 (50%)	130	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	1	1 / 2 (50%)	220	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	1	0 / 1 (0%)	ND (0.9)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-16g

Constituent Concentrations in Soil Compared to Screening Values
SWMU 8 – Process Pump Tank
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-17a
Sample Results: Metals
SWMU 9 – Transfer Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 2																					
SumpTS-3	11/15/89	19	N	ND (0.3)	2.1	100	**1**	ND (0.5)	ND (1)	20	11	8	4	ND (0.002)	ND (1)	16	ND (0.5)	ND (1)	ND (5)	23	54

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-17b

Sample Results: General Chemistry Parameters
SWMU 9 – Transfer Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry		
				(mg/kg)	(pH units)	(µS/cm)
Comercial Regional Screening Levels [1]:				**47,000**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Fluoride**	**pH**	**Specific conductance**
Category 2						
SumpTS-3	11/15/89	19	N	400	9.05	87

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-17c
Constituent Concentrations in Soil Compared to Screening Values
SWMU 9 – Transfer Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL)[2]		Commercial Screening Level (CSL) [3]	
Parameter	**Units**	**Number of Locations**	**Frequency of Detection**	**Maximum Detected Value**	**# of Exceedences[4]**	**(BK)**	**# of Exceedences[5]**	**(ESL)**	**# of Exceedences[5]**	**(CSL)**
Metals										
Antimony	mg/kg	1	0 / 1 (0%)	ND (0.3) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	1	1 / 1 (100%)	2.1	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	1	1 / 1 (100%)	100	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	1	1 / 1 (100%)	1	1	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	1	0 / 1 (0%)	ND (0.5)	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	1	0 / 1 (0%)	ND (1) ‡	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	1	1 / 1 (100%)	20	0	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	1	1 / 1 (100%)	11	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	1	1 / 1 (100%)	8	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	1	1 / 1 (100%)	4	0	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	1	0 / 1 (0%)	ND (0.002)	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	1	0 / 1 (0%)	ND (1)	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	1	1 / 1 (100%)	16	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	1	0 / 1 (0%)	ND (0.5)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	1	0 / 1 (0%)	ND (1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	1	0 / 1 (0%)	ND (5) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	1	1 / 1 (100%)	23	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	1	1 / 1 (100%)	54	0	(58)	NA	(NA)	0	(350,000)

TABLE 3-17c

Constituent Concentrations in Soil Compared to Screening Values
SWMU 9 – Transfer Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-18a
Sample Results: Metals
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
SWMU11-1	01/19/16	0 - 0.5	N	ND (2.1)	5.1	93	ND (1.1)	ND (1.1)	**3.4**	**64**	4.4	**58**	**32**	ND (0.11)	**1.8**	12	ND (1.1)	ND (1.1)	ND (2.1)	20	**170**
	01/19/16	2 - 3	N	ND (2.2)	4.3	60	ND (1.1)	ND (1.1)	0.54	14	3.2	10	6.2	ND (0.11)	ND (1.1)	7.7	ND (1.1)	ND (1.1)	ND (2.2)	12	53
SWMU11-2	01/26/16	0 - 0.5	N	ND (2.1)	4	100	ND (1)	ND (1)	**2**	35	4.9	**27**	**9.7**	ND (0.11)	**1.9**	12	ND (1)	ND (1)	ND (2.1)	22	53
	01/26/16	2 - 3	N	ND (2.1)	3.7	120	ND (1.1)	ND (1.1)	**1.7**	**40**	6.8	15	3.8	ND (0.1)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	25	27
SWMU11-3	01/19/16	0 - 0.5	N	ND (2.2)	5.8	120	ND (1.1)	ND (1.1)	**2.7**	**70**	5.9	**33**	**59**	ND (0.11)	**2.5**	15	ND (1.1)	ND (1.1)	ND (2.2)	22	**140**
	01/19/16	2 - 3	N	ND (2.2)	4.5	110	ND (1.1)	ND (1.1)	**5.4**	**87**	4	14	**30**	ND (0.11)	ND (1.1)	9.3	ND (1.1)	ND (1.1)	ND (2.2)	15	**79**
	01/18/17	5 - 6	N	ND (2.1)	3	59	ND (1.1)	ND (1.1)	**1**	12	2.1	6.6	2.7	ND (0.1)	ND (1.1)	4.6	ND (1.1) J	ND (1.1)	ND (2.1)	9.3	28
	01/18/17	9 - 10	N	---	---	---	---	---	0.69	---	---	---	---	---	---	---	---	---	---	---	---
SWMU11-4	01/25/16	0 - 0.5	N	ND (2.2)	4.7	220	ND (1.1)	ND (1.1)	**1.8**	37	6.2	16	**12**	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2)	30	54
	01/25/16	2 - 3	N	ND (2.1)	4.3	330	ND (1.1)	ND (1.1)	0.47	17	7.9	11	1.3	ND (0.11)	ND (1.1)	9.1	ND (1.1)	ND (1.1)	ND (2.1)	39	36
SWMU11-5	01/20/16	0 - 0.5	N	ND (2.1)	4.9	110	ND (1.1)	ND (1.1)	**1.8**	**63**	5	**17**	**13**	ND (0.11)	**2.2**	9.9	ND (1.1)	ND (1.1)	ND (2.1)	22	**89**
	01/20/16	2 - 3	N	ND (2.1)	5.7	140	ND (1.1)	ND (1.1)	**2.4**	**67**	4.1	**18**	**13**	ND (0.11)	**4.8**	7.1	ND (1.1)	ND (1.1)	ND (2.1)	22	**93**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-18b

Sample Results: Contract Laboratory Program Inorganics
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
SWMU11-1	01/19/16	0 - 0.5	N	5,800	20,000	12,000	4,600	180	1,500	1,200	ND (0.215)
	01/19/16	2 - 3	N	5,200	19,000	8,600	3,600	170	1,200	850	ND (0.216)
SWMU11-3	01/18/17	5 - 6	N	3,400	16,000	5,200	3,100	120	800 J	450 J	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-18c

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
SWMU11-3	01/19/16	0 - 0.5	N	82 J	84 J	5.3 R	5.3 R	6 J	140 J	190 J	350 J	170 J	150 J	150 J	7.8 J	200 J	5.3 R	52 J	9.5 J	57 J	190 J	**250 JR**
	01/19/16	2 - 3	N	5.4 R	5.4 R	5.4 R	5.4 R	6.1 J	180 J	290 J	450 J	190 J	190 J	200 J	9.4 J	210 J	5.4 R	140 J	5.4 R	41 J	220 J	**380 JR**
	01/18/17	5 - 6	N	---	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (7.5)	ND (350)	ND (350)	ND (400)
	01/18/17	9 - 10	N	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	29 J	54 J	110 J	15 J	27 J	55 J	5.4 R	79 J	5.4 R	15 J	5.4 R	31 J	72 J	**72 JR**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-18d

Sample Results: General Chemistry Parameters
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
SWMU11-1	01/19/16	0 - 0.5	N	8.8
	01/19/16	2 - 3	N	7.7
SWMU11-2	01/26/16	0 - 0.5	N	11
	01/26/16	2 - 3	N	10
SWMU11-3	01/19/16	0 - 0.5	N	8.2
	01/19/16	2 - 3	N	7.8
SWMU11-4	01/25/16	0 - 0.5	N	10
	01/25/16	2 - 3	N	9.3
SWMU11-5	01/20/16	0 - 0.5	N	9.2
	01/20/16	2 - 3	N	9.1

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-18e

Sample Results: Pesticides
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
SWMU11-3	01/18/17	5 - 6	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-18f

Sample Results: Polychlorinated Biphenyls
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
		Commercial Screening Level[1]:		27,000	830	720	950	950	970	990	940
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
Category 1											
SWMU11-1	01/19/16	0 - 0.5	N	17 R	35 R	17 R	17 R	17 R	600 J	17 R	625.5 JR
	01/19/16	2 - 3	N	17 R	34 R	17 R	17 R	17 R	19 J	17 R	44.5 JR
SWMU11-3	01/19/16	0 - 0.5	N	18 R	35 R	18 R	18 R	18 R	120 J	78 J	216 JR
	01/19/16	2 - 3	N	18 R	36 R	18 R	18 R	18 R	24 J	39 J	81 JR

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-18g

Sample Results: Dioxins and Furans
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
		Commercial Screening Level [1]:		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
		Background [2]:		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
SWMU11-1	01/19/16	0 - 0.5	N	10,000 J	770 J	58 J	53 J	46 J	250 J	31 J	99 J	19 J	ND (30) J*	13 J	ND (1,500) J	16 J	4.3 J	ND (0.53) J	110,000 J	1,800 J	**290**
	01/19/16	2 - 3	N	650 J	44 J	3.2 J	3.4 J	ND (2.1) J	15 J	2.7 J	ND (5.2) J	ND (0.45) J	1.9 J	ND (1) J	ND (91) J	ND (1) J	ND (0.14) J	ND (0.4) J	8,000 J	69 J	**19**
SWMU11-3	01/19/16	0 - 0.5	N	5,500 J	470 J	28 J	38 J	35 J	160 J	28 J	66 J	7.6 J	26 J	7.6 J	ND (630) J	12 J	ND (2.7) J	6.9 J	47,000 J	860 J	**170**
	01/19/16	2 - 3	N	34,000 J	ND (4.2) J	120 J	140 J	ND (3.2) J	730 J	130 J	270 J	25 J	100 J	ND (14) J	ND (2,500) J	41 J	ND (7.7) J	9.4 J	360,000 J	3,900 J	**820**
	01/18/17	9 - 10	N	200	19	ND (1.1)	1.7 J	ND (1.2)	5.6 J	1.6 J	ND (2.2)	ND (0.67)	1 J	ND (0.45)	ND (32)	ND (0.47)	ND (0.049)	0.66 J	1,700	32	**6.6**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-18h

Constituent Concentrations in Soil Compared to Screening Values
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	2	5 / 5 (100%)	820	5	(5.58)	NA	(NA)	2	(220)
Metals										
Antimony	mg/kg	5	0 / 11 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	5	11 / 11 (100%)	5.8	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	5	11 / 11 (100%)	330	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	5	0 / 11 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	5	0 / 11 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	5	12 / 12 (100%)	5.4	9	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	5	11 / 11 (100%)	87	6	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	5	11 / 11 (100%)	7.9	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	5	11 / 11 (100%)	58	5	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	5	11 / 11 (100%)	59	7	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	5	0 / 11 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	5	5 / 11 (45%)	4.8	5	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	5	11 / 11 (100%)	15	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	5	0 / 11 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	5	0 / 11 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	5	0 / 11 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	5	11 / 11 (100%)	39	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	5	11 / 11 (100%)	170	5	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	3 / 3 (100%)	5,800	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	3 / 3 (100%)	20,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	2	3 / 3 (100%)	12,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	3 / 3 (100%)	4,600	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	2	3 / 3 (100%)	180	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	2	3 / 3 (100%)	1,500	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-18h

Constituent Concentrations in Soil Compared to Screening Values
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	2	3 / 3 (100%)	1,200	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.216)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	1	3 / 3 (100%)	82	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	1	3 / 4 (75%)	84	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	1	3 / 4 (75%)	5.4	NA	(NE)	NA	(NA)	0	(45,000,000)
Acenaphthylene	µg/kg	1	3 / 4 (75%)	5.4	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	1	3 / 4 (75%)	6.1	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	1	3 / 4 (75%)	180	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	1	3 / 4 (75%)	290	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	1	3 / 4 (75%)	450	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	1	3 / 4 (75%)	190	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	1	3 / 4 (75%)	190	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	1	3 / 4 (75%)	200	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	1	3 / 4 (75%)	9.4	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	1	3 / 4 (75%)	210	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	1	3 / 4 (75%)	5.4	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	1	3 / 4 (75%)	140	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	1	3 / 4 (75%)	9.5	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	1	3 / 4 (75%)	57	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	1	3 / 4 (75%)	220	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	1	3 / 4 (75%)	380	3	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	2	4 / 4 (100%)	18	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	2	4 / 4 (100%)	36	NA	(NE)	NA	(NA)	0	(830)
Aroclor 1232	µg/kg	2	4 / 4 (100%)	18	NA	(NE)	NA	(NA)	0	(720)
Aroclor 1242	µg/kg	2	4 / 4 (100%)	18	NA	(NE)	NA	(NA)	0	(950)

TABLE 3-18h

Constituent Concentrations in Soil Compared to Screening Values
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences [4]	(BK)	# of Exceedences [5]	(ESL)	# of Exceedences [5]	(CSL)
Polychlorinated biphenyls										
Aroclor 1248	µg/kg	2	4 / 4 (100%)	18	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	2	4 / 4 (100%)	600	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	2	4 / 4 (100%)	78	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	2	4 / 4 (100%)	625.5	NA	(NE)	NA	(NA)	0	(940)

TABLE 3-18h

Constituent Concentrations in Soil Compared to Screening Values
SWMU 11 – Former Sulfuric Acid Tanks
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-19a
Sample Results: Metals
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC5-1	01/19/16	0 - 0.5	N	ND (2.2)	4.5	110	ND (1.1)	ND (1.1)	**1.3**	**58**	5.6	16	8.2	ND (0.11)	**10**	15	ND (1.1)	ND (1.1)	ND (2.2)	22	**100**
	01/19/16	2 - 3	N	ND (2.1)	3.2	62	ND (1)	ND (1)	0.71	13	2.7	4.2	2.3	ND (0.11)	1.3	5.5	ND (1)	ND (1)	ND (2.1)	12	14
	01/19/16	5 - 6	N	ND (2.1)	3.1	85	ND (1)	ND (1)	0.51	15	3.7	4	2.1	ND (0.1)	**1.8**	8.4	ND (1)	ND (1)	ND (2.1)	15	15
	01/19/16	9 - 10	N	ND (2.1)	3.4	93	ND (1)	ND (1)	0.51	6.8	2.2	3.8	2.4	ND (0.1)	**1.7**	3.6	ND (1)	ND (1)	ND (2.1)	11	12
AOC5-2	12/08/15	0 - 0.5	N	ND (2.1)	4.2	86	ND (1)	ND (1)	**5.5**	**60**	4.6	14	**17**	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	20	**130**
	01/18/17	0.5	N	ND (2.4)	5.1	130	ND (1.2)	ND (1.2)	**8.2**	**170**	6.4	**24**	**12**	ND (0.12)	**5.8**	25	ND (1.2) J	ND (1.2)	ND (2.4)	32	**340**
	12/08/15	2 - 3	N	ND (2.1)	3.5	67	ND (1)	ND (1)	**3.4**	35	4.2	9.6	**23**	ND (0.1)	ND (1)	7.6	ND (1)	ND (1)	ND (2.1)	17	**76**
	01/18/17	5 - 6	N	---	---	---	---	---	**1.8**	---	---	---	---	---	---	---	---	---	---	---	---
AOC5-3	01/23/16	0 - 0.5	N	ND (2.1)	5	93	ND (1.1)	ND (1.1)	**4.3**	**95**	7.6	**38**	**10**	ND (0.11)	**1.9**	**28**	ND (1.1)	ND (1.1)	ND (2.1)	34	**410**
	01/23/16	2 - 3	N	ND (2.1)	4.8	94	ND (1.1)	ND (1.1)	0.42	19	5.4	8.9	3.8	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1)	24	48
AOC5-4	01/23/16	0 - 0.5	N	3.2	**18**	240	ND (1.1)	**2.5**	**9.4**	**730**	8.3	**530**	**120**	ND (0.11)	**23**	**67**	ND (1.1)	ND (1.1)	ND (2.3)	33	**1,900**
	01/23/16	2 - 3	N	ND (2.2)	3.5	100	ND (1.1)	ND (1.1)	**0.93**	**45**	7.7	**21**	4.5	ND (0.11)	ND (1.1)	24	ND (1.1)	ND (1.1)	ND (2.2)	35	**120**
	01/19/17	5 - 5.5	N	ND (2.2)	6.7	320	ND (1.1)	ND (1.1)	**2.2**	**150**	12	**79**	**15**	ND (0.11)	**2.1**	**35**	ND (1.1)	ND (1.1)	ND (2.2)	46	**310**
	01/19/17	6.5 - 7	N	---	---	---	---	---	**1.9**	---	---	---	---	---	---	---	---	---	---	---	---
AOC5-5	01/14/16	0 - 0.5	N	ND (2.2)	4.6	140	ND (1.1)	ND (1.1)	**8.1**	**190**	4.8	**26**	**51**	ND (0.11)	**23**	11	ND (1.1)	ND (1.1)	ND (2.2)	22	**250**
	01/14/16	2 - 3	N	ND (2.2)	5.9	120	ND (1.1)	ND (1.1)	**4.8**	**200**	8.5	**41**	**56**	ND (0.11)	**1.4**	17	ND (1.1)	ND (1.1)	ND (2.2)	30	**290**
	01/14/16	5 - 6	N	ND (2.2)	5.5	73	ND (1.1)	ND (1.1)	**1.1**	19	3.2	6.8	6.1	ND (0.11)	**5.5**	6.4	ND (1.1)	ND (1.1)	ND (2.2)	20	25
	01/14/16	9 - 10	N	ND (2.1)	2.7	50	ND (1)	ND (1)	ND (0.21)	5.2	1.7	2.5	2.6	ND (0.1)	ND (1)	2.7	ND (1)	ND (1)	ND (2.1)	7.8	11
AOC5-6	01/19/16	0 - 0.5	N	ND (2.1)	3.2	93	ND (1.1)	ND (1.1)	**1.8**	31 J	3.7	8.7 J	**9.3 J**	0.16	**1.4**	6.5 J	ND (1.1)	ND (1.1)	ND (2.1)	15	35
	01/19/16	0.5 - 1	FD	ND (2.1)	4.1	88	ND (1)	ND (1)	**1.5**	**40 J**	4.3	**19 J**	**14 J**	0.22	**1.5**	9.7 J	ND (1)	ND (1)	ND (2.1)	17	33
	01/19/16	2 - 3	N	ND (2.1)	6.4	66	ND (1.1)	ND (1.1)	**1.6**	21	3	6.3	**13**	ND (0.11)	ND (1.1)	5	ND (1.1)	ND (1.1)	ND (2.1)	27	28
AOC5-OS2	12/05/13	0 - 0.5	N	ND (2.2)	4.5	110	ND (1.1)	ND (1.1)	**14**	**160**	6.6	**41**	**36**	ND (0.11)	**3.2**	18	ND (1.1)	ND (1.1)	ND (2.2)	31	**350**
	12/05/13	2 - 3	N	ND (2.1)	4.1	73	ND (1)	ND (1)	**5.4**	**52**	4.7	9.8	**16**	ND (0.1)	ND (1)	9.5	ND (1)	ND (1)	ND (2.1)	23	**150**
AOC5-OS3	12/05/13	0 - 0.5	N	ND (2.2)	4.4	110	ND (1.1)	ND (1.1)	**1**	32	5.7	15	5.7	ND (0.11)	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2)	31	**67**
	12/05/13	2 - 3	N	ND (2.1)	4	100	ND (1.1)	ND (1.1)	**2.5**	**70**	5.4	**24**	**10**	ND (0.11)	1.2	14	ND (1.1)	ND (1.1)	ND (2.1)	29	**100**
AOC5-OS4	12/05/13	0 - 0.5	N	ND (2.2)	11	210	ND (1.1)	ND (1.1)	**24**	**580**	4.1	**140**	**220**	ND (0.11)	**5.6**	14	ND (1.1)	ND (1.1)	ND (2.2)	28	**690**
	12/05/13	2 - 3	N	ND (2.2)	7.4	160	ND (1.1)	ND (1.1)	**18**	**400**	5.7	**65**	**92**	ND (0.11)	**1.9**	16	ND (1.1)	ND (1.1)	ND (2.2)	31	**380**
	12/05/13	2 - 3	FD	ND (2.2)	7.6	190	ND (1.1)	ND (1.1)	**16**	**450**	5.6	**69**	**96**	ND (0.11)	**2.4**	17	ND (1.1)	ND (1.1)	ND (2.2)	33	**420**
PS-13	04/13/99	0	N	---	---	---	---	---	**9.8**	**88**	---	14.8	---	---	---	6.8	---	---	---	---	**1,250**
	04/13/99	3	N	---	---	---	---	---	ND (0.53)	8.4	---	6.7	---	---	---	3.6	---	---	---	---	**70.4**
PS-14	04/13/99	0	N	---	---	---	---	---	0.7	34.2	---	**31.3**	---	---	---	10.7	---	---	---	---	**82.3**
PS-15	04/13/99	0	N	---	---	---	---	---	**9.3**	**535**	---	**51.6**	---	---	---	14.4	---	---	---	---	**954**
PS-16	04/13/99	0	N	---	---	---	---	---	**3**	**505**	---	**95.6**	---	---	---	10.6	---	---	---	---	**685**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

[1] Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[2] CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

[3] Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-19b

Sample Results: Contract Laboratory Program Inorganics
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC5-1	01/19/16	0 - 0.5	N	8,000	26,000	15,000	6,200	240	1,700 J	1,700 J	ND (0.217)
	01/19/16	2 - 3	N	3,400	16,000	6,800	3,800	130	820	780	ND (0.208)
AOC5-4	01/19/17	5 - 5.5	N	15,000	39,000	28,000	11,000	320	3,400 J	1,700 J	---
PS-16	04/13/99	0	N	---	---	15,200	---	191	---	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-19c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
			Commercial Screening Level [1]:	**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC5-4	01/23/16	0 - 0.5	N	2,400 J	2,900 J	440 J	5.6 R	270 J	3,600 J	1,900 J	3,600 J	970 J	1,300 J	2,600 J	170 J	6,600 J	260 J	770 J	990 J	5,200 J	5,300 J	**2,900 JR**
	01/23/16	2 - 3	N	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	11 J	7.7 J	16 J	5.7 R	7.3 J	13 J	5.7 R	31 J	5.7 R	5.7 R	5.7 R	20 J	26 J	14 JR
	01/19/17	5 - 5.5	N	110 J	120 J	24 J	ND (370)	28 J	210 J	150 J	270 J	62 J	75 J	560	5.6 R	610 J	19 J	62 J	38 J	400 J	510 J	**1,000 JR**
AOC5-5	01/14/16	0 - 0.5	N	5.3 R	5.3 R	5.3 R	5.3 R	5.3 R	82 J	87 J	190 J	41 J	63 J	78 J	5.3 R	160 J	5.3 R	35 J	5.3 R	49 J	150 J	**120 JR**
	01/14/16	2 - 3	N	5.5 R	5.5 R	26 J	5.5 R	48 J	500 J	290 J	480 J	78 J	200 J	370 J	15 J	860 J	17 J	73 J	6.6 J	410 J	690 J	**410 JR**
	01/14/16	5 - 6	N	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	6.2 R

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-19d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Commercial Screening Level [1]:	**160,000**
			Background [2]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**
Category 1				
AOC5-4	01/19/17	5 - 5.5	N	460

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than tthe commercial screening level or RWQCB ESL are circled.
Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency
SVOCs	semivolatile organic compounds
VOCs	volatile organic compounds

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for SVOCs and VOCs.

TABLE 3-19e

Sample Results: General Chemistry Parameters
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry	
				(pH units)	(mg/kg)
Comercial Regional Screening Levels [1]:				NE	NE
DTSC-SL [2]:				NE	NE
Background [3]:				NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**	**Sulfate**
Category 1					
AOC5-1	01/19/16	0 - 0.5	N	8.3	---
	01/19/16	2 - 3	N	9.8	---
	01/19/16	5 - 6	N	9.2	---
	01/19/16	9 - 10	N	8.9	---
AOC5-2	12/08/15	0 - 0.5	N	9.8	---
	01/18/17	0.5	N	8.4	---
	12/08/15	2 - 3	N	9.8	---
AOC5-3	01/23/16	0 - 0.5	N	8.4	---
	01/23/16	2 - 3	N	9	---
AOC5-4	01/23/16	0 - 0.5	N	8.5	---
	01/23/16	2 - 3	N	9.5	---
AOC5-5	01/14/16	0 - 0.5	N	9.2	---
	01/14/16	2 - 3	N	9.5	---
	01/14/16	5 - 6	N	8.7	---
	01/14/16	9 - 10	N	9.4	---
AOC5-6	01/19/16	0 - 0.5	N	9.6	---
	01/19/16	0.5 - 1	FD	9.7	---
	01/19/16	2 - 3	N	9.6	---
AOC5-OS2	12/05/13	0 - 0.5	N	8.1	---
	12/05/13	2 - 3	N	9.3	---
AOC5-OS3	12/05/13	0 - 0.5	N	8.1	---
	12/05/13	2 - 3	N	8.8	---
AOC5-OS4	12/05/13	0 - 0.5	N	7.6	---
	12/05/13	2 - 3	N	8.5	---
	12/05/13	2 - 3	FD	8.6	---
PS-16	04/13/99	0	N	---	3,690

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-19f
Sample Results: Pesticides
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
			Commercial Screening Level [1]:	9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC5-4	01/19/17	5 - 5.5	N	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.6)	ND (56) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-19g

Sample Results: Polychlorinated Biphenyls
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
		Commercial Screening Level[1]:		27,000	830	720	950	950	970	990	940
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
AOC5-1	01/19/16	0 - 0.5	N	17 R	35 R	17 R	17 R	17 R	490 J	17 R	515.5 JR
	01/19/16	2 - 3	N	17 R	33 R	17 R	17 R	17 R	17 R	17 R	34 R
	01/19/16	5 - 6	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	34 R
AOC5-2	12/08/15	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	850 J	17 R	875.5 JR
	12/08/15	2 - 3	N	17 R	34 R	17 R	17 R	17 R	230 J	17 R	255.5 JR
AOC5-4	01/23/16	0 - 0.5	N	18 R	37 R	18 R	18 R	18 R	18 R	67 J	94 JR
	01/23/16	2 - 3	N	19 R	38 R	19 R	19 R	19 R	33 J	19 R	61.5 JR
AOC5-5	01/14/16	0 - 0.5	N	18 R	35 R	18 R	18 R	18 R	1,700 J	18 R	1,727 JR
	01/14/16	2 - 3	N	18 R	36 R	18 R	18 R	18 R	1,300 J	18 R	1,327 JR
	01/14/16	5 - 6	N	18 R	36 R	18 R	18 R	18 R	26 J	18 R	53 JR
	01/14/16	9 - 10	N	16 R	33 R	16 R	16 R	16 R	16 R	16 R	32 R
AOC5-6	01/19/16	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	330 J	17 R	355.5 JR
	01/19/16	2 - 3	N	17 R	35 R	17 R	17 R	17 R	1,200 J	17 R	1,226 JR

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit

TABLE 3-19g

Sample Results: Polychlorinated Biphenyls
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-19h

Sample Results: Dioxins and Furans
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC5-1	01/19/16	0 - 0.5	N	720 J	80 J	ND (4.2) J	6.2 J	8.1 J	23 J	6.9 J	12 J	ND (0.98) J	5.3 J	ND (3.4) J	ND (160) J	ND (0.32) J	ND (0.52) J	ND (0.39) J	7,100 J	140 J	**30**
	01/19/16	2 - 3	N	14 J	4.9 J	ND (0.89) J	ND (0.7) J	3.4 J	ND (1.3) J	ND (2.2) J	ND (0.66) J	ND (1.1) J	2.5 J	ND (0.33) J	ND (130) J	13 J	ND (0.19) J	ND (0.28) J	100 J	4.4 J	**14**
	01/19/16	5 - 6	N	ND (9.4) J	3.3 J	1.1 J	ND (0.37) J	ND (2.4) J	ND (1.2) J	ND (1.7) J	ND (0.35) J	ND (1.8) J	ND (0.83) J	ND (0.35) J	ND (90) J	9.1 J	ND (0.13) J	ND (0.3) J	86 J	ND (2.9) J	**8.2**
AOC5-2	12/08/15	0 - 0.5	N	27,000 J	1,600 J	94 J	84 J	110 J	500 J	ND (67) J	170 J	46 J	53 J	18 J	ND (3,000) J	30 J	7.9 J	ND (0.28) J	270,000 J	3,300 J	**680**
	12/08/15	2 - 3	N	3,400 J	170 J	13 J	19 J	18 J	67 J	7.4 J	27 J	4.2 J	7.4 J	3.7 J	ND (370) J	ND (3.3) J	0.99 J	ND (0.14) J	33,000 J	340 J	**88**
	01/18/17	5 - 6	N	3,600	100	7.6 J	14	7.2 J	41	6.5 J	16	2.4 J	3.8 J	ND (1.2)	ND (200)	ND (2)	ND (0.68)	ND (0.15)	31,000	200	**70**
AOC5-4	01/23/16	0 - 0.5	N	77,000 J	9,600 J	680 J	270 J	1,000 J	3,000 J	ND (1,700) J	560 J	180 J	170 J	ND (0.7) J	350 J	350 J	ND (41) J*	ND (1.1) J	810,000 J	22,000 J	**2,000**
	01/23/16	2 - 3	N	1,300 J	120 J	9.8 J	ND (3.7) J	ND (7.2) J	41 J	ND (2.9) J	ND (6.9) J	5.2 J	2.8 J	2.6 J	ND (590) J	3.4 J	ND (0.67) J	ND (0.27) J	17,000 J	480 J	**59**
AOC5-5	01/14/16	0 - 0.5	N	16,000 J	1,400 J	80 J	62 J	78 J	370 J	ND (55) J	110 J	25 J	45 J	20 J	ND (2,200) J	28 J	ND (6.2) J	10 J	160,000 J	3,400 J	**460**
	01/14/16	2 - 3	N	20,000 J	3,900 J	240 J	110 J	230 J	1,100 J	89 J	190 J	100 J	64 J	50 J	ND (7,400) J	85 J	ND (9) J	ND (1.9) J	250,000 J	14,000 J	**970**
	01/14/16	5 - 6	N	1,100 J	120 J	8 J	3.4 J	6.7 J	33 J	ND (3) J	7.6 J	ND (3.1) J	2.4 J	ND (1.9) J	ND (280) J	2.8 J	ND (0.43) J	ND (0.12) J	17,000 J	300 J	**40**
	01/14/16	9 - 10	N	20 J	2.1 J	ND (0.091) J	ND (0.22) J	ND (0.14) J	ND (0.59) J	ND (0.12) J	ND (0.37) J	ND (0.16) J	ND (0.081) J	ND (0.14) J	ND (4.6) J	ND (0.25) J	ND (0.078) J	ND (0.11) J	230 J	5.5 J	0.73
AOC5-6	01/19/16	0 - 0.5	N	900 J	95 J	6.8 J	5.7 J	5.5 J	23 J	6.8 J	9.9 J	2.5 J	3.6 J	ND (4.6) J	ND (170) J	4.7 J	ND (0.46) J	ND (0.26) J	9,400 J	200 J	**32**
	01/19/16	2 - 3	N	3,400 J	260 J	17 J	17 J	15 J	83 J	ND (14) J	35 J	5.6 J	14 J	ND (13) J	ND (620) J	13 J	ND (1.3) J	ND (0.28) J	31,000 J	430 J	**110**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-19i

Constituent Concentrations in Soil Compared to Screening Values
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Dioxins and Furans										
TEQ Human	ng/kg	5	14 / 14 (100%)	2,000	13	(5.58)	NA	(NA)	4	(220)
Metals										
Antimony	mg/kg	9	1 / 25 (4.0%)	3.2	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	9	25 / 25 (100%)	18	1	(11)	NA	(NA)	1	(0.36) *
Barium	mg/kg	9	25 / 25 (100%)	320	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	9	0 / 25 (0%)	ND (1.2) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	9	1 / 25 (4.0%)	2.5	1	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	13	30 / 32 (94%)	24	25	(0.83)	NA	(NA)	8	(6.3)
Chromium, total	mg/kg	13	30 / 30 (100%)	730	18	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	9	24 / 24 (100%)	12	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	13	30 / 30 (100%)	530	15	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	9	25 / 25 (100%)	220	16	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	9	2 / 25 (8.0%)	0.22	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	9	17 / 25 (68%)	23	15	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	13	29 / 29 (100%)	67	3	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	9	0 / 25 (0%)	ND (1.2)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	9	0 / 25 (0%)	ND (1.2)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	9	0 / 25 (0%)	ND (2.4) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	9	24 / 24 (100%)	46	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	13	30 / 30 (100%)	1,900	21	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	3 / 3 (100%)	15,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	3 / 3 (100%)	39,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	3	4 / 4 (100%)	28,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	3 / 3 (100%)	11,000	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	3	4 / 4 (100%)	320	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	2	3 / 3 (100%)	3,400	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-19i

Constituent Concentrations in Soil Compared to Screening Values
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	2	3 / 3 (100%)	1,700	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.217)	NA	(NE)	NA	(NA)	0	(150)
Semivolatile Organic Compounds										
bis (2-ethylhexyl) phthalate	µg/kg	1	1 / 1 (100%)	460	NA	(NE)	NA	(NA)	0	(160,000)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	2	6 / 6 (100%)	2,400	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	2	6 / 6 (100%)	2,900	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	2	6 / 6 (100%)	440	NA	(NE)	NA	(NA)	0	(45,000,000)
Acenaphthylene	µg/kg	2	5 / 6 (83%)	5.7	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	2	6 / 6 (100%)	270	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	2	6 / 6 (100%)	3,600	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	2	6 / 6 (100%)	1,900	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	2	6 / 6 (100%)	3,600	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	2	6 / 6 (100%)	970	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	2	6 / 6 (100%)	1,300	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	2	7 / 7 (100%)	2,600	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	2	6 / 6 (100%)	170	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	2	6 / 6 (100%)	6,600	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	2	6 / 6 (100%)	260	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	2	6 / 6 (100%)	770	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	2	6 / 6 (100%)	990	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	2	6 / 6 (100%)	5,200	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	2	6 / 6 (100%)	5,300	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	2	6 / 6 (100%)	2,900	4	(55)	NA	(NA)	1	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	5	13 / 13 (100%)	19	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	5	13 / 13 (100%)	38	NA	(NE)	NA	(NA)	0	(830)

TABLE 3-19i

Constituent Concentrations in Soil Compared to Screening Values
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
Parameter	**Units**	**Number of Locations**	**Frequency of Detection**	**Maximum Detected Value**	**# of Exceedences [4]**	**(BK)**	**# of Exceedences [5]**	**(ESL)**	**# of Exceedences [5]**	**(CSL)**
Polychlorinated biphenyls										
Aroclor 1232	µg/kg	5	13 / 13 (100%)	19	NA	(NE)	NA	(NA)	0	(720)
Aroclor 1242	µg/kg	5	13 / 13 (100%)	19	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1248	µg/kg	5	13 / 13 (100%)	19	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	5	13 / 13 (100%)	1,700	NA	(NE)	NA	(NA)	3	(970)
Aroclor 1260	µg/kg	5	13 / 13 (100%)	67	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	5	13 / 13 (100%)	1,727	NA	(NE)	NA	(NA)	3	(940)

TABLE 3-19i

Constituent Concentrations in Soil Compared to Screening Values
AOC 5 – Cooling Tower A
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-20a
Sample Results: Metals
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Antimony**	**Arsenic** [3]	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
2 B-Tower	04/13/99	0	N	---	---	---	---	---	ND (0.5)	**78**	---	**41**	---	---	---	8.8	---	---	---	---	**120**
3 B-Tower	04/13/99	0	N	---	---	---	---	---	ND (0.5)	**150**	---	**110**	---	---	---	5.8	---	---	---	---	**170**
AOC6-1	01/20/16	0 - 0.5	N	ND (2.2)	5.7	160	ND (1.1)	ND (1.1)	0.69	32	8.1	**140**	**16**	ND (0.11)	**15**	12	ND (1.1)	ND (1.1)	ND (2.2)	28	**170**
	01/20/16	2 - 3	N	ND (2.2)	4.3	200	ND (1.1)	ND (1.1)	ND (0.22)	18	7.9	11	4.9	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.2)	32	**78 J**
	01/20/16	2 - 3	FD	ND (2.2)	4.3	210	ND (1.1)	ND (1.1)	ND (0.22)	16	7	11	4.5	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2)	29	38 J
AOC6-2	01/20/16	0 - 0.5	N	ND (2.1)	4.6	120	ND (1)	ND (1)	**1.9**	**48**	6.5	**24**	**29**	ND (0.11)	**6.8**	13	ND (1)	ND (1)	ND (2.1)	23	**140**
	01/20/16	2 - 3	N	ND (2.1)	6	120	ND (1.1)	ND (1.1)	0.64	22	4.2	10	5.7	ND (0.11)	**1.8**	8.1	ND (1.1)	ND (1.1)	ND (2.1)	21	41
AOC6-3	01/20/16	0 - 0.5	N	ND (2.1)	4.1	190	ND (1.1)	ND (1.1)	0.65	23 J	4.9	16	7.2 J	ND (0.11)	ND (1.1)	9.6 J	ND (1.1)	ND (1.1)	ND (2.1)	21 J	42 J
	01/20/16	0 - 0.5	FD	ND (2.1)	5.1	170	ND (1.1)	ND (1.1)	0.66	37 J	5.8	**18**	**9.9 J**	ND (0.11)	1.2	13 J	ND (1.1)	ND (1.1)	ND (2.1)	26 J	53 J
	01/20/16	2 - 3	N	ND (2.1)	4.2	280	ND (1.1)	ND (1.1)	ND (0.21)	10	4.7	6.9	4.6	ND (0.1)	ND (1.1)	6.9	ND (1.1)	ND (1.1)	ND (2.1)	22	26
AOC6-4	01/20/16	0 - 0.5	N	ND (2.1)	6.3	270	ND (1.1)	ND (1.1)	0.48	36	9.2	**250**	**9.8**	ND (0.1)	**11**	12	ND (1.1)	ND (1.1)	ND (2.1)	25	**110**
	01/20/16	2 - 3	N	ND (2.1)	2.9	60	ND (1)	ND (1)	ND (0.21)	7.6	3.6	8.9	2	ND (0.1)	ND (1)	4.7	ND (1)	ND (1)	ND (2.1)	16	17
AOC6-5	01/19/16	0 - 0.5	N	ND (2.1)	4.5	110	ND (1.1)	ND (1.1)	0.3	22	4.4	**27**	8.3	ND (0.11)	**2.6**	9	ND (1.1)	ND (1.1)	ND (2.1)	17	43
	01/19/16	2 - 3	N	ND (2.1)	4.3	100	ND (1.1)	ND (1.1)	0.56	26	5.1	**27**	**9.5 J**	ND (0.11)	**6.9**	11 J	ND (1.1)	ND (1.1)	ND (2.1)	20	39
	01/19/16	2 - 3	FD	ND (2.1)	4.4	95	ND (1)	ND (1)	0.51	23	4.5	**28**	6.6 J	ND (0.1)	**4.9**	8.5 J	ND (1)	ND (1)	ND (2.1)	17	38
	01/24/17	5 - 6	N	ND (2.2)	4.6	120	ND (1.1)	ND (1.1)	ND (0.22)	11	5.6	11	6.9	ND (0.11)	**1.4**	9.7	ND (1.1)	ND (1.1) J	ND (2.2)	25	38
	01/24/17	9 - 10	N	ND (2)	2.9	35	ND (1)	ND (1)	ND (0.2)	4.7	1.8	4	2.1	ND (0.1)	ND (1)	2.7	ND (1)	ND (1) J	ND (2)	8.2	12
AOC6-6	11/08/11	0 - 0.5	N	ND (2)	3.5	130	ND (1)	ND (1)	**1.2**	35	4.5	16	**11**	ND (0.1)	ND (1)	9	ND (1)	ND (1)	ND (2)	24	**64 J**
	11/08/11	2 - 3	N	ND (2.1)	3.9	140	ND (1)	ND (1)	**1.7**	37	4.9	**17**	**17**	ND (0.1)	**1.9**	9.7	ND (1)	ND (1)	ND (2.1)	26	**70**
	11/08/11	4 - 5	N	ND (2.2)	3.2	190	ND (1.1)	ND (1.1)	ND (0.44)	13	5.5	9.5	6.1	ND (0.11)	ND (1.1)	9.6	ND (1.1)	ND (1.1)	ND (2.2)	26	32
AOC6-7	01/19/16	0 - 0.5	N	ND (2.1)	7.2	180	ND (1.1)	ND (1.1)	**1.8**	**100**	7	**180**	**30**	ND (0.11)	**13**	19	ND (1.1)	ND (1.1)	ND (2.1)	25	**250**
	01/19/16	2 - 3	N	ND (2.1)	4.6	88	ND (1)	ND (1)	**2.2**	39	3.8	7.8	**14**	ND (0.1)	ND (1)	6.6	ND (1)	ND (1)	ND (2.1)	18	**79**
	01/24/17	5 - 6	N	ND (2.2)	3.5	110	ND (1.1)	ND (1.1)	**3.9**	**83**	5.4	14	**73**	ND (0.11)	**6.8**	10	ND (1.1)	ND (1.1) J	ND (2.2)	26	**76**
	01/24/17	9 - 10	N	ND (2)	1.5	54	ND (1)	ND (1)	ND (0.2)	6.7	1.7	3	3.1	ND (0.1)	ND (1)	2.5	ND (1)	ND (1) J	2	9.7	14
AOC6-8	01/25/16	0 - 0.5	N	ND (2.1)	4.5	110	ND (1)	ND (1)	**1.8**	27	4.1	8.6	**25**	ND (0.11)	1.2	8.3	ND (1)	ND (1)	ND (2.1)	24	51
	01/25/16	2 - 3	N	ND (2.1)	3.1	120	ND (1)	ND (1)	ND (0.21)	8.8	3	4.3	3.8	ND (0.1)	ND (1)	5	ND (1)	ND (1)	ND (2.1)	20	17
	01/25/16	5 - 6	N	ND (2.1)	5.5	130	ND (1.1)	ND (1.1)	0.24	10	3.8	5.3	4.1	ND (0.11)	ND (1.1)	7	ND (1.1)	ND (1.1)	ND (2.1)	23	24
	01/25/16	8 - 9	N	ND (2.1)	3.8	76	ND (1)	ND (1)	ND (0.21)	6.8	2.8	4.4	2	ND (0.1)	ND (1)	3.2	ND (1)	ND (1)	ND (2.1)	15	12
AOC6-OS1	11/08/11	0 - 0.5	N	ND (2.1)	4.7	180	ND (1)	ND (1)	**1.5**	38	5.1	11	**12**	ND (0.11)	**7.4**	9.1	ND (1)	ND (1)	ND (2.1)	27	35
B tower SE standpip	04/13/99	0	N	---	---	---	---	---	ND (0.5)	**51**	---	9	---	---	---	4.3	---	---	---	---	31
PS-1	04/13/99	0	N	---	---	---	---	---	**3.7**	**115**	---	**92.3**	---	---	---	9	---	---	---	---	**336**
	04/13/99	1	N	---	---	---	---	---	**3.9**	**118**	---	**62.6**	---	---	---	9.3	---	---	---	---	**293**
PS-2	04/13/99	0	N	---	---	---	---	---	**3.1**	**72.4**	---	**40.1**	---	---	---	6.3	---	---	---	---	**94.6**
	04/13/99	3	N	---	---	---	---	---	ND (0.51)	4.9	---	**18.7**	---	---	---	3.2	---	---	---	---	31.7
PS-3	04/13/99	0	N	---	---	---	---	---	**3.3**	**350**	---	**59.8**	---	---	---	10.1	---	---	---	---	**465**
	04/13/99	3	N	---	---	---	---	---	**1.3**	**83.3**	---	14.5	---	---	---	4.2	---	---	---	---	**114**
PS-4	04/13/99	0	N	---	---	---	---	---	**1.5**	**264**	---	**70.2**	---	---	---	6.3	---	---	---	---	**394**
PS-5	04/13/99	0	N	---	---	---	---	---	**5.9**	**386**	---	**58**	---	---	---	7.7	---	---	---	---	**513**

TABLE 3-20a
Sample Results: Metals
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
PS-6	04/13/99	0	N	---	---	---	---	---	**15.3**	**459**	---	**211**	---	---	---	11.3	---	---	---	---	**1,130**
PS-7	04/13/99	0	N	---	---	---	---	---	ND (0.56)	**80.5**	---	**44**	---	---	---	14.5	---	---	---	---	**181**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-20b

Sample Results: Contract Laboratory Program Inorganics
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC6-5	01/19/16	0 - 0.5	N	6,200	20,000	11,000	4,700	220	1,700	440	ND (0.214)
	01/19/16	2 - 3	N	7,000	22,000	13,000	5,400	280 J	1,900	870	ND (0.213)
	01/19/16	2 - 3	FD	6,700	21,000	12,000	5,000	220 J	1,600	880	ND (0.21)
AOC6-6	11/08/11	0 - 0.5	N	6,500	25,000	13,000	5,200 J	200 J	1,300 J	58	ND (1.02)
AOC6-7	01/24/17	5 - 6	N	6,000	22,000	15,000	4,600	170	1,800 J	510	ND (0.214) J

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-20c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Category 1																						
AOC6-2	01/20/16	0 - 0.5	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	23 J	19 J	51 J	5.5 J	17 J	21 J	5.2 R	39 J	5.2 R	5.2 J	5.2 R	16 J	38 J	30 JR
	01/20/16	2 - 3	N	5.3 R	5.3 R	8.4 J	5.3 R	25 J	780 J	1,300 J	1,800 J	1,000 J	600 J	580 J	310 J	560 J	5.3 R	720 J	5.3 R	160 J	540 J	**1,900 JR**
AOC6-4	01/20/16	0 - 0.5	N	11 J	11 J	6.8 J	5.1 R	17 J	140 J	200 J	470 J	62 J	160 J	360 J	5.1 R	780 J	5.1 R	65 J	5.1 R	430 J	680 J	**270 JR**
AOC6-5	01/19/16	0 - 0.5	N	5 R	5 R	5 R	5 R	5 R	5 R	5 R	7.7 J	5 R	5 R	5 R	5 R	5 R	5 R	5 R	5 R	5 R	5 R	6.3 JR
AOC6-6	11/08/11	0 - 0.5	N	12	17	ND (5.1)	ND (5.1)	ND (5.1)	34	39	86	20	29	44	5.1	68	ND (5.1)	18	ND (5.1)	34	61	**58**
	11/08/11	2 - 3	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND (6.5)	---	---	**---**
AOC6-7	01/19/16	0 - 0.5	N	5.3 R	5.3 R	8.1 J	5.3 R	13 J	640 J	670 J	1,100 J	500 J	380 J	650 J	110 J	1,300 J	5.3 J	390 J	5.3 R	530 J	1,200 J	**1,000 JR**
	01/19/16	2 - 3	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	58 J	52 J	79 J	10 J	32 J	47 J	5.2 R	110 J	5.2 R	10 J	5.2 R	46 J	100 J	**70 JR**
	01/24/17	5 - 6	N	---	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (360)	ND (420)
AOC6-8	01/25/16	0 - 0.5	N	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	8.1 J	12 J	26 J	5.1 R	12 J	12 J	5.1 R	19 J	5.1 R	5.1 R	5.1 R	7.1 J	18 J	18 JR

TABLE 3-20c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-20d

Sample Results: Total Petroleum Hydrocarbons
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC6-6	11/08/11	0 - 0.5	N	13	49

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-20e

Sample Results: General Chemistry Parameters
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				NE
DTSC-SL [2]:				NE
Background [3]:				NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	pH
Category 1				
AOC6-1	01/20/16	0 - 0.5	N	9.6
	01/20/16	2 - 3	N	9.5
	01/20/16	2 - 3	FD	9.5
AOC6-2	01/20/16	0 - 0.5	N	8.7
	01/20/16	2 - 3	N	9.4
AOC6-3	01/20/16	0 - 0.5	N	9.5
	01/20/16	0 - 0.5	FD	9.5
	01/20/16	2 - 3	N	9.7
AOC6-4	01/20/16	0 - 0.5	N	8.7
	01/20/16	2 - 3	N	9.2
AOC6-5	01/19/16	0 - 0.5	N	9.3
	01/19/16	2 - 3	N	8.5
	01/19/16	2 - 3	FD	8.5
AOC6-6	11/08/11	0 - 0.5	N	9.4
	11/08/11	2 - 3	N	9.6
	11/08/11	4 - 5	N	10
AOC6-7	01/19/16	0 - 0.5	N	8.6
	01/19/16	2 - 3	N	9.7
AOC6-8	01/25/16	0 - 0.5	N	9.5
	01/25/16	2 - 3	N	9.8
	01/25/16	5 - 6	N	10
	01/25/16	8 - 9	N	10
AOC6-OS1	11/08/11	0 - 0.5	N	8

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-20f

Sample Results: Pesticides
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
		Commercial Screening Level [1]:		9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sampl e Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC6-6	11/08/11	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC6-7	01/24/17	5 - 6	N	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-20g

Sample Results: Polychlorinated Biphenyls
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
			Background[2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC6-1	01/20/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	54	ND (18)	---	---	81
	01/20/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/20/16	2 - 3	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC6-2	01/20/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	420	180	---	---	617
	01/20/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	250	ND (18)	---	---	277
AOC6-3	01/20/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	130	ND (17)	---	---	155.5
	01/20/16	0 - 0.5	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	130	ND (18)	---	---	157
	01/20/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC6-4	01/20/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	1,100	370	---	---	1,488
	01/20/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	37	ND (17)	---	---	62.5
AOC6-5	01/19/16	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
	01/19/16	2 - 3	N	17 R	34 R	17 R	17 R	17 R	230 J	98 J	---	---	345 JR
AOC6-6	11/08/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	780	ND (17)	ND (17)	ND (17)	805.5
AOC6-7	01/19/16	0 - 0.5	N	ND (18) J	ND (35)	ND (18)	ND (18)	ND (18)	2,800	1,100 J	---	---	3,918
	01/19/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	2,000	ND (17)	---	---	2,026
	01/24/17	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18) J	2,000	1,200	---	---	3,218
	01/24/17	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	24	ND (17)	---	---	49.5
AOC6-8	01/25/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	860	ND (17)	---	---	885.5
	01/25/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	36	ND (17)	---	---	61.5
	01/25/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/25/16	8 - 9	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	45	ND (17)	---	---	70.5

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

* Reporting limits greater than or equal to the commercial screening level.
--- not analyzed

TABLE 3-20g

Sample Results: Polychlorinated Biphenyls
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-20h

Sample Results: Dioxins and Furans
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
		Commercial Screening Level [1]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
AOC6-1	01/20/16	0 - 0.5	N	10,000 J	620 J	45 J	30 J	33 J	140 J	17 J	46 J	9.4 J	15 J	5.6 J	ND (930) J	9.1 J	2.4 J	3.9 J	170,000 J	2,100 J	**250**
AOC6-2	01/20/16	0 - 0.5	N	4,300 J	390 J	28 J	25 J	25 J	110 J	18 J	47 J	9.6 J	ND (15) J	9.7 J	ND (840) J	9.7 J	ND (2.1) J	5.6 J	31,000 J	1,200 J	**130**
	01/20/16	2 - 3	N	1,400 J	120 J	8.9 J	8.8 J	ND (8.8) J	39 J	6.8 J	16 J	3.2 J	ND (5.4) J	5.1 J	ND (240) J	4.3 J	ND (0.76) J	ND (0.24) J	17,000 J	350 J	**45**
AOC6-4	01/20/16	0 - 0.5	N	2,300 J	230 J	16 J	15 J	19 J	66 J	ND (13) J	26 J	4.5 J	ND (9.2) J	11 J	ND (380) J	7.8 J	ND (1.1) J	ND (6) J	24,000 J	550 J	**74**
AOC6-5	01/19/16	0 - 0.5	N	2,000 J	170 J	14 J	10 J	9.8 J	45 J	6.3 J	18 J	4 J	ND (5.3) J	ND (3.9) J	ND (390) J	ND (4.3) J	ND (0.16) J	ND (0.23) J	28,000 J	470 J	**63**
	01/19/16	2 - 3	N	1,700 J	170 J	ND (13) J	8.9 J	10 J	44 J	6.8 J	17 J	3.5 J	ND (5.6) J	9.6 J	ND (410) J	ND (3.1) J	ND (0.051) J	ND (0.1) J	23,000 J	470 J	**59**
AOC6-7	01/19/16	0 - 0.5	N	15,000 J	1,900 J	140 J	62 J	88 J	450 J	ND (270) J	83 J	18 J	ND (31) J*	14 J	77 J	ND (35) J	ND (2.3) J	ND (7.6) J	250,000 J	11,000 J	**360**
	01/19/16	2 - 3	N	15,000 J	2,800 J	200 J	57 J	150 J	650 J	ND (41) J	97 J	52 J	29 J	32 J	ND (6,600) J	47 J	ND (3.3) J	ND (0.64) J	230,000 J	17,000 J	**730**
AOC6-8	01/25/16	0 - 0.5	N	1,000 J	100 J	7.7 J	6.1 J	9.2 J	29 J	4.6 J	8.9 J	2.1 J	ND (2.6) J	ND (4.1) J	ND (200) J	5 J	ND (0.36) J	ND (0.42) J	14,000 J	290 J	**34**

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-20i

Constituent Concentrations in Soil Compared to Screening Values
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	6	9 / 9 (100%)	730	9	(5.58)	NA	(NA)	3	(220)
Metals										
Antimony	mg/kg	9	0 / 24 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	9	24 / 24 (100%)	7.2	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	9	24 / 24 (100%)	280	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	9	0 / 24 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	9	0 / 24 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	19	23 / 37 (62%)	15.3	16	(0.83)	NA	(NA)	1	(6.3)
Chromium, total	mg/kg	19	37 / 37 (100%)	459	15	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	9	24 / 24 (100%)	9.2	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	19	37 / 37 (100%)	250	19	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	9	24 / 24 (100%)	73	12	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	9	0 / 24 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	9	13 / 24 (54%)	15	11	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	19	37 / 37 (100%)	19	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	9	0 / 24 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	9	0 / 24 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	9	1 / 24 (4.2%)	2	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	9	24 / 24 (100%)	32	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	19	37 / 37 (100%)	1,130	20	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	3	4 / 4 (100%)	7,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	3	4 / 4 (100%)	25,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	3	4 / 4 (100%)	15,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	3	4 / 4 (100%)	5,400	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	3	4 / 4 (100%)	280	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	3	4 / 4 (100%)	1,900	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-20i
Constituent Concentrations in Soil Compared to Screening Values
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	3	4 / 4 (100%)	880	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	3	0 / 4 (0%)	ND (1.02) ‡	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	6	8 / 8 (100%)	12	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	6	8 / 9 (89%)	17	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	6	7 / 9 (78%)	8.4	NA	(NE)	NA	(NA)	0	(45,000,000)
Acenaphthylene	µg/kg	6	7 / 9 (78%)	5.3	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	6	7 / 9 (78%)	25	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	6	8 / 9 (89%)	780	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	6	8 / 9 (89%)	1,300	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	6	8 / 9 (89%)	1,800	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	6	8 / 9 (89%)	1,000	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	6	8 / 9 (89%)	600	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	6	8 / 9 (89%)	650	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	6	8 / 9 (89%)	310	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	6	8 / 9 (89%)	1,300	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	6	7 / 9 (78%)	5.3	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	6	8 / 9 (89%)	720	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	6	7 / 10 (70%)	5.3	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	6	8 / 9 (89%)	530	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	6	8 / 9 (89%)	1,200	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	6	8 / 9 (89%)	1,900	5	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	8	2 / 19 (11%)	17	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	8	2 / 19 (11%)	34	NA	(NE)	NA	(NA)	0	(830)
Aroclor 1232	µg/kg	8	2 / 19 (11%)	17	NA	(NE)	NA	(NA)	0	(720)
Aroclor 1242	µg/kg	8	2 / 19 (11%)	17	NA	(NE)	NA	(NA)	0	(950)

TABLE 3-20i

Constituent Concentrations in Soil Compared to Screening Values
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Polychlorinated biphenyls										
Aroclor 1248	µg/kg	8	2 / 19 (11%)	17	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	8	16 / 19 (84%)	2,800	NA	(NE)	NA	(NA)	4	(970)
Aroclor 1260	µg/kg	8	6 / 19 (32%)	1,200	NA	(NE)	NA	(NA)	2	(990)
Total PCBs	µg/kg	8	16 / 19 (84%)	3,918	NA	(NE)	NA	(NA)	4	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	1	1 / 1 (100%)	13	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	1	1 / 1 (100%)	49	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	1	0 / 1 (0%)	ND (1.3)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-20i

Constituent Concentrations in Soil Compared to Screening Values
AOC 6 – Cooling Tower B
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-21a
Sample Results: Metals
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC7-1	01/06/16 §	0 - 0.5	N	ND (2.1)	3.7	360	ND (1)	ND (1)	ND (0.21)	22	8.1	9	2.5	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2.1)	38	42
	01/06/16 §	2 - 3	N	ND (2.1)	4	240	ND (1.1)	ND (1.1)	ND (0.21)	**45**	11	**20**	3.9	ND (0.11)	ND (1.1)	**30**	ND (1.1)	ND (1.1)	ND (2.1)	48	45
AOC7-2	01/06/16 §	0 - 0.5	N	ND (2.1)	2.9	110	ND (1.1)	ND (1.1)	0.28 J	22 J	7.6	12 J	**12 J**	ND (0.11)	**2.5**	13	ND (1.1)	ND (1.1)	ND (2.1)	30	44 J
	01/06/16 §	0 - 0.5	FD	ND (2.2)	4.1	90	ND (1.1)	ND (1.1)	**1.8 J**	36 J	7.1	**18 J**	**32 J**	ND (0.11)	**5**	13	ND (1.1)	ND (1.1)	ND (2.2)	27	57 J
	01/06/16 §	2 - 3	N	ND (2.1)	3.3	150	ND (1.1)	ND (1.1)	ND (0.21)	24	7.9	9.5	5.1	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	36	43
AOC7-3	12/09/15	0 - 1	N	ND (2.1)	4.4	130	ND (1.1)	ND (1.1)	0.41	26	5.3	12	**10**	ND (0.11)	**2.1**	12	ND (1.1)	ND (1.1)	ND (2.1)	23	34
	12/09/15	2 - 3	N	ND (2.1)	3.5	130	ND (1.1)	ND (1.1)	ND (0.21)	11	3.9	6.4	3.7	ND (0.11)	ND (1.1)	8.3	ND (1.1)	ND (1.1)	ND (2.1)	20	21
AOC7-4	12/09/15	0 - 1	N	ND (2.2)	4.3	130	ND (1.1)	ND (1.1)	**1.2**	28	**13**	11	4	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2)	31	33
	12/09/15	2 - 3	N	ND (2.2)	3.6	110	ND (1.1)	ND (1.1)	ND (0.22)	17	6.7	7.2	3.5	ND (0.11)	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.2)	26	32
AOC7-5	01/06/16	0 - 0.5	N	ND (2.1)	3.6	97	ND (1)	ND (1)	0.56	25	7.8	10	3	ND (0.11)	ND (1)	15	ND (1)	ND (1)	ND (2.1)	38	43
	01/06/16	2 - 3	N	ND (2.2)	4.3	160	ND (1.1)	ND (1.1)	**0.98**	29	7.4	12	**11**	ND (0.11)	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.2)	36	43

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

[1] Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[2] CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

[3] Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-21b

Sample Results: Contract Laboratory Program Inorganics
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1] :	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2] :	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC7-4	12/09/15	0 - 1	N	8,400	24,000	19,000	7,000	210	2,000	630	ND (0.222)
	12/09/15	2 - 3	N	8,900	24,000	17,000	7,600	250	1,700	560	ND (0.218)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-21c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
			Commercial Screening Level[1]:	**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
			Background[2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC7-1	01/06/16 §	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/06/16 §	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC7-2	01/06/16 §	0 - 0.5	N	5.3	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.1	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.4	6.8
	01/06/16 §	0 - 0.5	FD	8.7	6.2	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	8	ND (54)	11	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	9.8	**60**
	01/06/16 §	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC7-3	12/09/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (53)	5.3	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	**59**
	12/09/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.1)	ND (5.3)	ND (5.3)	ND (6.1)
AOC7-4	12/09/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (61)
	12/09/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.8)	ND (5.4)	ND (5.4)	ND (6.2)
AOC7-5	01/06/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	01/06/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (60)

TABLE 3-21c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-21d

Sample Results: Total Petroleum Hydrocarbons
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	1,100	140,000
			RWQCB Environmental Screening Level [2]:	230	11,000
			Background [3]:	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as diesel	TPH as motor oil
Category 1					
AOC7-1	01/06/16	0 - 0.5	N	17	37
	01/06/16	2 - 3	N	ND (11)	ND (11)
AOC7-2	01/06/16	0 - 0.5	N	18	19
	01/06/16	0 - 0.5	FD	27	33
	01/06/16	2 - 3	N	ND (11)	ND (11)
AOC7-3	12/09/15	0 - 1	N	ND (11)	51
	12/09/15	2 - 3	N	ND (11)	ND (11)
AOC7-4	12/09/15	0 - 1	N	270	810
	12/09/15	2 - 3	N	ND (11)	ND (11)
AOC7-5	01/06/16	0 - 0.5	N	ND (11)	ND (11)
	01/06/16	2 - 3	N	57	590

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

§	Sample removed during 2020 excavation
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-21e

Sample Results: General Chemistry Parameters
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC7-1	01/06/16 §	0 - 0.5	N	8.1
	01/06/16 §	2 - 3	N	8.3
AOC7-2	01/06/16 §	0 - 0.5	N	9.1
	01/06/16 §	0 - 0.5	FD	8.4
	01/06/16 §	2 - 3	N	9.5
AOC7-3	12/09/15	0 - 1	N	8.9
	12/09/15	2 - 3	N	8.5
AOC7-4	12/09/15	0 - 1	N	9.8
	12/09/15	2 - 3	N	8.4
AOC7-5	01/06/16	0 - 0.5	N	9
	01/06/16	2 - 3	N	9.3

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-21f

Sample Results: Polychlorinated Biphenyls
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1] :	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
Category 1													
AOC7-1	01/06/16 §	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	47	23	---	---	87
	01/06/16 §	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC7-2	01/06/16 §	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	48	46	---	---	112
	01/06/16 §	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/06/16 §	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	20	54	---	---	92
AOC7-3	12/09/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/09/15	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	110	ND (18)	---	---	137
AOC7-4	12/09/15	0 - 1	N	ND (18) J	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (36)
	12/09/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC7-5	01/06/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	37	ND (18)	---	---	64

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established

TABLE 3-21f

Sample Results: Polychlorinated Biphenyls
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-21g

Sample Results: Dioxins and Furans
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
AOC7-1	01/06/16	0 - 0.5	N	73 J	7.9 J	ND (0.74) J	1.2 J	0.87 J	2.8 J	ND (0.89) J	ND (1.1) J	ND (0.18) J	ND (0.66) J	ND (1.2) J	ND (10) J	ND (0.13) J	ND (0.15) J	0.83 J	760 J	19 J	2.7

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

§ Sample removed during 2020 excavation
* Reporting limits greater than or equal to the interim screening level.
--- not analyzed
µg/kg micrograms per kilogram
ft bgs feet below ground surface
ng/kg nanograms per kilogram
DTSC California Department of Toxic Substances Control
DTSC-SL DTSC Screening Level
FD field duplicate
J concentration or reporting limit estimated by laboratory or data validation
JR estimated value, one or more input values is “R” qualified.
NA not applicable
NE not established
N primary sample
ND not detected at the listed reporting limit
R The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-21h

Constituent Concentrations in Soil Compared to Screening Values
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Metals										
Antimony	mg/kg	3	0 / 6 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	3	6 / 6 (100%)	4.4	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	3	6 / 6 (100%)	160	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	3	0 / 6 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	3	0 / 6 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	3	4 / 6 (67%)	1.2	2	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	3	6 / 6 (100%)	29	0	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	3	6 / 6 (100%)	13	1	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	3	6 / 6 (100%)	12	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	3	6 / 6 (100%)	11	2	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	3	0 / 6 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	3	1 / 6 (17%)	2.1	1	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	3	6 / 6 (100%)	18	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	3	0 / 6 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	3	0 / 6 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	3	0 / 6 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	3	6 / 6 (100%)	38	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	3	6 / 6 (100%)	43	0	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	2 / 2 (100%)	8,900	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	2 / 2 (100%)	24,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	2 / 2 (100%)	19,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	2 / 2 (100%)	7,600	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	2 / 2 (100%)	250	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	2 / 2 (100%)	2,000	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	1	2 / 2 (100%)	630	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.222)	NA	(NE)	NA	(NA)	0	(150)

TABLE 3-21h

Constituent Concentrations in Soil Compared to Screening Values
AOC 7 – Hazardous Materials Storage Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Polycyclic Aromatic Hydrocarbons										
Fluoranthene	µg/kg	3	1 / 6 (17%)	5.3	NA	(NE)	NA	(NA)	0	(30,000,000)
B(a)P Equivalent	µg/kg	3	1 / 6 (17%)	59	1	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	3	2 / 6 (33%)	110	NA	(NE)	NA	(NA)	0	(970)
Total PCBs	µg/kg	3	2 / 6 (33%)	137	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	3	2 / 6 (33%)	270	NA	(NE)	1	(230)	0	(1,100)
TPH as motor oil	mg/kg	3	3 / 6 (50%)	810	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	3	0 / 3 (0%)	ND (1.2)	NA	(NE)	0	(740)	0	(3,900)

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-22a

Sample Results: Metals
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																				
AOC8-1	01/07/16	0 - 0.5	N	ND (2.2) J	4.2	120	ND (1.1)	ND (1.1)	**45 J**	10	**18**	5.5	0.31	ND (1.1)	**31**	ND (1.1) J	ND (1.1)	ND (2.2)	43	53 J
	01/07/16	2 - 3	N	ND (2.1)	4.6	280	ND (1)	ND (1)	27	10	**17**	3.3	0.34	ND (1)	25	ND (1)	ND (1)	ND (2.1)	39	41
AOC8-2	12/09/15	0 - 1	N	ND (2.1)	3.7	100	ND (1)	ND (1)	31	5.8	11	8.1	ND (0.1)	**2.6**	12	ND (1)	ND (1)	ND (2.1)	23	28
	12/09/15	2 - 3	N	ND (2.1)	3.9	83	ND (1)	ND (1)	15	4.7	7.1	2.8	ND (0.1)	**5.1**	13	ND (1)	ND (1)	ND (2.1)	22	22

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-22b

Sample Results: Contract Laboratory Program Inorganics
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	1,100,000	NE	820,000	NE	6,900	NE	NE	150
			Background [2]:	16,400	66,500	29,303	12,100	402	4,400	2,070	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC8-1	01/07/16	0 - 0.5	N	13,000	36,000	23,000	11,000	300	2,700	400	ND (0.0442)
	01/07/16	2 - 3	N	12,000	53,000	24,000	9,600	330	2,600 J	550 J	ND (0.0415)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-22c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)	
			Commercial Screening Level[1] :	17,000	2,100
			Background[2] :	NE	55
Location	Date	Depth (ft bgs)	Sample Type	Naphthalene	B(a)P Equivalent
Category 1					
AOC8-1	01/07/16	2 - 3	N	ND (5.9)	ND
AOC8-2	12/09/15	2 - 3	N	ND (6.8)	ND

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-22d
Sample Results: Total Petroleum Hydrocarbons
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC8-1	01/07/16	0 - 0.5	N	19	160
	01/07/16	2 - 3	N	ND (10)	ND (10)
AOC8-2	12/09/15	0 - 1	N	37	260
	12/09/15	2 - 3	N	ND (10)	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-22e

Constituent Concentrations in Soil Compared to Screening Values
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK)[1] # of Exceedences[4]	Background Value (BK)[1] (BK)	RWQCB Environmental Screening Levels (ESL)[2] # of Exceedences[5]	RWQCB Environmental Screening Levels (ESL)[2] (ESL)	Commercial Screening Level (CSL)[3] # of Exceedences[5]	Commercial Screening Level (CSL)[3] (CSL)
Metals										
Antimony	mg/kg	2	0 / 4 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	2	4 / 4 (100%)	4.6	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	2	4 / 4 (100%)	280	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	2	0 / 4 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	2	0 / 4 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, total	mg/kg	2	4 / 4 (100%)	45	1	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	2	4 / 4 (100%)	10	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	2	4 / 4 (100%)	18	2	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	2	4 / 4 (100%)	8.1	0	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	2	2 / 4 (50%)	0.34	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	2	2 / 4 (50%)	5.1	2	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	2	4 / 4 (100%)	31	1	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	2	0 / 4 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	2	0 / 4 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	2	0 / 4 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	2	4 / 4 (100%)	43	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	2	4 / 4 (100%)	53	0	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	2 / 2 (100%)	13,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	2 / 2 (100%)	53,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	2 / 2 (100%)	24,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	2 / 2 (100%)	11,000	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	2 / 2 (100%)	330	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	2 / 2 (100%)	2,700	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	1	2 / 2 (100%)	550	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.0442)	NA	(NE)	NA	(NA)	0	(150)

TABLE 3-22e

Constituent Concentrations in Soil Compared to Screening Values
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL)[2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences[4]	(BK)	# of Exceedences[5]	(ESL)	# of Exceedences[5]	(CSL)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	2	2 / 4 (50%)	37	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	2	2 / 4 (50%)	260	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	2	0 / 2 (0%)	ND (1.2)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-22e

Constituent Concentrations in Soil Compared to Screening Values
AOC 8 – Paint Shed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC13-1	12/05/15	0 - 1	N	ND (2.1)	2.8	**460**	ND (1.1)	ND (1.1)	ND (0.21)	31 J	7	**17**	1.1	ND (0.1)	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.1)	34	23
	12/05/15	0 - 1	FD	ND (2.1)	2.8	**520**	ND (1.1)	ND (1.1)	ND (0.21)	22 J	7.1	14	ND (1.1)	ND (0.11)	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1)	29	22
	12/05/15	2 - 3	N	ND (2.1)	3	340	ND (1.1)	ND (1.1)	ND (0.21)	12	5.9	6.4	1.2	ND (0.1)	ND (1.1)	8	ND (1.1)	ND (1.1)	ND (2.1)	28	28
AOC13-10	12/14/15	0 - 0.5	N	ND (2.1)	3	83	ND (1)	ND (1)	0.49	22	3.3	**26**	6.1	ND (0.1)	ND (1)	6.5	ND (1)	ND (1)	ND (2.1)	15	18
	12/14/15	2 - 3	N	ND (2.1)	3	90	ND (1.1)	ND (1.1)	ND (0.21)	14	3.9	7.6	3.3	ND (0.11)	ND (1.1)	7.8	ND (1.1)	ND (1.1)	ND (2.1)	16	18
AOC13-11	01/05/16	0 - 0.5	N	ND (2.1)	2.9	87	ND (1)	ND (1)	0.31	13 J	4	8	**11 J**	ND (0.1)	1.3	9.2 J	ND (1)	ND (1)	ND (2.1)	21 J	28 J
	01/05/16	0.5 - 1	FD	ND (2.1)	3.2	94	ND (1.1)	ND (1.1)	0.34	18 J	5.2	10	**18 J**	ND (0.11)	**1.9**	16 J	ND (1.1)	ND (1.1)	ND (2.1)	26 J	46 J
	01/05/16	2 - 3	N	ND (2.1)	4.2	64	ND (1)	ND (1)	ND (0.21)	9	2.9	4.8	3.3	ND (0.1)	ND (1)	6.2	ND (1)	ND (1)	ND (2.1)	19	18
AOC13-12	12/05/15	0 - 1	N	ND (2.1)	3.1	100	ND (1.1)	ND (1.1)	ND (0.21)	6.4	2.6	5	3.4 J	ND (0.1)	ND (1.1)	4.8	ND (1.1)	ND (1.1)	ND (2.1)	15	16 J
	12/05/15	0 - 1	FD	ND (2.3)	3.4	120	ND (1.2)	ND (1.2)	ND (0.23)	7.6	3.1	6.3	**9.4 J**	ND (0.12)	ND (1.2)	5.8	ND (1.2)	ND (1.2)	ND (2.3)	18	22 J
	12/05/15	2 - 3	N	ND (2.1)	3.9	100	ND (1.1)	ND (1.1)	ND (0.21)	7.1	3.5	5.8	3.1	ND (0.11)	ND (1.1)	5.7	ND (1.1)	ND (1.1)	ND (2.1)	19	17
AOC13-13	01/09/16	0 - 0.5	N	ND (2.1) J	4.1	73	ND (1)	ND (1)	0.49	33	6.8	11	6.1	0.13	ND (1)	14	ND (1) J	ND (1)	ND (2.1) J	30	53
	01/09/16	2 - 3	N	ND (2.1)	4.2	130	ND (1)	ND (1)	ND (0.21)	6.2	2.8	4.2	2.2	ND (0.1)	ND (1)	4.6	ND (1)	ND (1)	ND (2.1)	15	16
AOC13-14	12/14/15	0 - 0.5	N	ND (2)	2.8	90	ND (1)	ND (1)	**1.5**	23	3	6.9	7.6	ND (0.1)	ND (1)	6.3	ND (1)	ND (1)	ND (2)	13	20
	12/14/15	2 - 3	N	ND (2.1)	2.7	74	ND (1)	ND (1)	0.29	8.8	3.1	5	2.7	ND (0.1)	ND (1)	7.8	ND (1)	ND (1)	ND (2.1)	14	13
AOC13-15	12/14/15	0 - 0.5	N	ND (2.1) J	3.4	110	ND (1.1)	ND (1.1)	**0.96**	35	9.8	**22**	**37 J**	ND (0.1)	**1.4**	23	ND (1.1) J	ND (1.1) J	ND (2.1)	32	**59**
	12/14/15	2 - 3	N	ND (2)	2.4	64	ND (1)	ND (1)	ND (0.2)	9.5	3.2	4.7	2.8	ND (0.1)	ND (1)	6.9	ND (1)	ND (1)	ND (2)	13	13
	12/14/15	5 - 6	N	ND (2)	2.5	64	ND (1)	ND (1)	ND (0.2)	7.6	2.8	4.3	2.1	ND (0.1)	ND (1)	6.1	ND (1)	ND (1)	ND (2)	12	12
AOC13-16	01/05/16	0 - 1	N	ND (2.1) J	4.1	100	ND (1.1)	ND (1.1)	ND (0.21)	7.2	3.2	4.8	4.1	ND (0.1)	ND (1.1)	5.7	ND (1.1)	ND (1.1)	ND (2.1)	18	18
	01/05/16	2 - 3	N	ND (2.1)	4.1	100	ND (1)	ND (1)	ND (0.21)	6.9	2.9	4.3	3	ND (0.11)	ND (1)	4.8	ND (1)	ND (1)	ND (2.1)	17	15
AOC13-17	12/08/15	0 - 0.5	N	ND (2.1)	2.7	89	ND (1.1)	ND (1.1)	0.76	27	8	16	**8.7**	0.19	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1)	28	37
	12/08/15	2 - 3	N	ND (2.2)	1.8	89	ND (1.1)	ND (1.1)	**1.4**	38	6.9	12	7.8	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2)	25	37
AOC13-18	01/06/16	0 - 0.5	N	ND (2)	3.4	85	ND (1)	ND (1)	ND (0.21)	26	8.2	10	5.6	ND (0.1)	ND (1)	17	ND (1)	ND (1)	ND (2)	40	52
	01/06/16	0.5 - 1	FD	ND (2)	3.2	90	ND (1)	ND (1)	ND (0.2)	24	8.6	12	5.6	ND (0.1)	ND (1)	17	ND (1)	ND (1)	ND (2)	39	52
	01/06/16	2 - 3	N	ND (2.1)	3.3	85	ND (1)	ND (1)	ND (0.21)	24	9.7	12	3.4	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2.1)	43	47
AOC13-19	01/08/16	0 - 0.5	N	ND (2.1)	4.2	78	ND (1.1)	ND (1.1)	ND (0.21)	14	6.4	7.6	3	0.17	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1)	28	34
	01/08/16	2 - 3	N	ND (2.1)	4	68	ND (1)	ND (1)	ND (0.2)	14	6.8	8.4	4	0.12	ND (1)	14	ND (1)	ND (1)	ND (2.1)	23	25
AOC13-2	12/05/15	0 - 1	N	ND (2.1)	2.9	170	ND (1.1)	ND (1.1)	ND (0.21)	34	7.1	14	3.9	ND (0.11)	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.1)	30	29
	12/05/15	2 - 3	N	ND (2.2)	3	300	ND (1.1)	ND (1.1)	ND (0.22)	20	6.1	6.1	1.3	ND (0.11)	ND (1.1)	9.9	ND (1.1)	ND (1.1)	ND (2.2)	25	30
AOC13-20	01/08/16	0 - 0.5	N	ND (2.1)	4	110	ND (1.1)	ND (1.1)	ND (0.21)	18	7.1	10	6	0.38	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1)	26	36
	01/08/16	2 - 3	N	ND (2.2)	6.3	120	ND (1.1)	ND (1.1)	ND (0.21)	21	8.1	13	6.9	0.28	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2)	33	49
AOC13-21	01/08/16	0 - 0.5	N	ND (2)	4.4	210	ND (1)	ND (1)	ND (0.2)	12	4.6	8.9	4.2	0.11	ND (1)	11 J	ND (1)	ND (1)	ND (2)	18	29
	01/08/16	0 - 0.5	FD	ND (2)	4.5	200	ND (1)	ND (1)	ND (0.2)	10	4.5	8.6	4.3	0.13	ND (1)	8.9 J	ND (1)	ND (1)	ND (2)	18	28
	01/08/16	2 - 3	N	ND (2.1)	4.6	110	ND (1)	ND (1)	ND (0.2)	15	6.6	11	5.6	0.18	ND (1)	15	ND (1)	ND (1)	ND (2.1)	27	41
AOC13-22	01/08/16	0 - 0.5	N	ND (2.1)	5.6	200	ND (1.1)	ND (1.1)	0.21	20	6.9	14	8.3	0.13	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.1)	27	51
	01/08/16	2 - 3	N	ND (2.1)	4.2	140	ND (1)	ND (1)	0.55	19	6.9	11	**9.5**	0.13	ND (1)	13	ND (1)	ND (1)	ND (2.1)	26	41
AOC13-23	01/08/16	0 - 0.5	N	ND (2.1)	4.1	140	ND (1.1)	ND (1.1)	0.39	16	6.8	12	**12**	0.24	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	25	33
	01/08/16	2 - 3	N	ND (2.2)	4.2	150	ND (1.1)	ND (1.1)	0.31	27	6.5	11	**13**	0.29	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2)	29	34

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC13-24	01/08/16	0 - 0.5	N	ND (2.1)	4.8	180	ND (1)	ND (1)	ND (0.21)	8.5 J	3.9	6.1	4.5 J	0.12	ND (1)	7.3 J	ND (1)	ND (1)	ND (2.1)	18	25 J
	01/08/16	0 - 0.5	FD	ND (2.1)	5	180	ND (1)	ND (1)	ND (0.21)	12 J	5	9.8	**12 J**	0.12	ND (1)	10 J	ND (1)	ND (1)	ND (2.1)	22	31 J
	01/08/16	2 - 3	N	ND (2.1)	4.7	160	ND (1)	ND (1)	ND (0.21)	12	3.7	7	6.1	ND (0.1)	ND (1)	6.3	ND (1)	ND (1)	ND (2.1)	18	28
AOC13-25	01/09/16	0 - 0.5	N	ND (2.1)	3.9	160	ND (1.1)	ND (1.1)	ND (0.21)	18	9.2	12	7.9	0.14	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1)	26	33
	01/09/16	2 - 3	N	ND (2.1)	3.8	140	ND (1)	ND (1)	ND (0.21)	17	6.3	12	6.4	0.18	ND (1)	13	ND (1)	ND (1)	ND (2.1)	26	32
AOC13-26	01/09/16	0 - 0.5	N	ND (2.1)	4.3	120	ND (1.1)	ND (1.1)	ND (0.21)	15	6.5	**18**	7.9	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1)	24	39
	01/09/16	2 - 3	N	ND (2.1)	4.1	150 J	ND (1)	ND (1)	0.56	21 J	5.5	9.3	**37**	0.12	ND (1)	12	ND (1)	ND (1)	ND (2.1)	25	37
	01/09/16	2 - 3	FD	ND (2.1)	3.7	120 J	ND (1.1)	ND (1.1)	0.47	17 J	4.8	9.1	**31**	0.12	1.2	10	ND (1.1)	ND (1.1)	ND (2.1)	21	33
AOC13-27	01/09/16	0 - 0.5	N	ND (2.2)	4.7	140	ND (1.1)	ND (1.1)	0.35	26	7.4	12	5.4	0.14	ND (1.1)	18	ND (1.1)	ND (1.1)	ND (2.2)	33	37
	01/09/16	2 - 3	N	ND (2.1)	4.1	200	ND (1.1)	ND (1.1)	0.78	24	6.2	10	**8.7**	0.12	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	27	35
AOC13-28	01/09/16	0 - 0.5	N	ND (2.1)	4.3	130	ND (1)	ND (1)	0.29	26	5.5	**22**	6.2	0.13	ND (1)	12	ND (1)	ND (1)	ND (2.1)	24	40
	01/09/16	2 - 3	N	ND (2.1)	4.6	160	ND (1.1)	ND (1.1)	ND (0.21)	16	6.1	9.1	5.2	0.15	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1)	27	32
AOC13-29	01/09/16	0 - 0.5	N	ND (2.1)	4	120 J	ND (1)	ND (1)	ND (0.21)	25 J	7.9	13	3.4	0.16	ND (1)	22	ND (1)	ND (1)	ND (2.1)	32	32
	01/09/16	0 - 0.5	FD	ND (2.1)	4	160 J	ND (1)	ND (1)	ND (0.21)	35 J	9.2	13	3.6	0.15	ND (1)	25	ND (1)	ND (1)	ND (2.1)	38	33
	01/09/16	2 - 3	N	ND (2.1)	4.5	140	ND (1.1)	ND (1.1)	ND (0.21)	23	8.2	16	6.7	0.14	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.1)	31	34
AOC13-3	12/14/15	0 - 0.5	N	ND (2.1)	4.3	200	ND (1)	ND (1)	0.29	17	6.1	14	**28**	ND (0.11)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	25	38
	12/14/15	2 - 3	N	ND (2.3)	4	250	ND (1.1)	ND (1.1)	ND (0.22)	11	5	11	7	ND (0.11)	ND (1.1)	8.6	ND (1.1)	ND (1.1)	ND (2.3)	20	28
AOC13-30	01/07/16	0 - 0.5	N	ND (2.2)	3.8	79	ND (1.1)	ND (1.1)	0.82	37	7.4	13	7.2	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2)	34	53
	01/07/16	2 - 3	N	ND (2.1)	4	200	ND (1.1)	ND (1.1)	0.28	16	6.8	11	4.1	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1)	32	39
AOC13-31	01/07/16	0 - 0.5	N	ND (2.2)	4.1	68	ND (1.1)	ND (1.1)	ND (0.22)	16	4.8	7.7	5.6 J	ND (0.11)	ND (1.1)	9.1	ND (1.1)	ND (1.1)	ND (2.2)	22	33
	01/07/16	0 - 0.5	FD	ND (2.2)	3.8	82	ND (1.1)	ND (1.1)	0.28	16	5.1	7.7	**9.7 J**	ND (0.11)	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.2)	26	35
	01/07/16	2 - 3	N	ND (2.1)	3.6	110	ND (1.1)	ND (1.1)	0.49	14	5.8	9	5.7	ND (0.11)	ND (1.1)	9.7	ND (1.1)	ND (1.1)	ND (2.1)	24	34
AOC13-32	12/04/15	0 - 0.5	N	ND (2)	4	79	ND (1)	ND (1)	ND (0.2)	12	4.9	7.6	3	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	23	29
	12/04/15	2 - 3	N	ND (2)	3.3	82	ND (1)	ND (1)	ND (0.2)	8.2	2.7	4.5	4.9	ND (0.1)	ND (1)	5.1	ND (1)	ND (1)	ND (2)	15	17
AOC13-33	02/15/17	0 - 0.5	N	ND (2.1)	4	150 J	ND (1)	**1.4**	**3.7 J**	**160 J**	5.3 J	**170 J**	**200 J**	0.34	1.2	10 J	ND (1) J	ND (1) J	ND (2.1) J	18	**230 J**
	02/18/17 [Y]	0	N	ND (2.1)	1.9	280	ND (1.1)	ND (1.1)	ND (0.21)	**47**	2.6	**44**	**110**	ND (0.11)	ND (1.1)	4.2	ND (1.1) J	ND (1.1)	ND (2.1) J	10	**73**
	02/15/17	0 - 0.5	FD	2.7	6.2	210 J	ND (1)	**1.9**	**6.4 J**	**230 J**	7 J	**110 J**	**580 J**	0.7	**2.9**	13 J	ND (1) J	ND (1) J	ND (2) J	20	**480 J**
	02/15/17	2 - 3	N	ND (2.1)	2.9	84	ND (1)	ND (1) J	**2.1**	**61**	4.4 J	15	**22 J**	ND (0.1)	ND (1)	9.5	ND (1) J	ND (1) J	ND (2.1) J	19	55 J
AOC13-34	01/21/17	0 - 0.5	N	ND (2.1)	3.2	68	ND (1.1)	ND (1.1)	---	8.5	2.5	4.3	3.2	0.2	ND (1.1)	4.5	ND (1.1)	ND (1.1)	2.4	13	15
	01/21/17	2 - 3	N	ND (2.1)	2.3	46	ND (1)	ND (1)	---	5.4	2.3	3.3	2.2	ND (0.1)	ND (1)	3.6	ND (1)	ND (1)	2.3	9.8	15
	01/21/17	5 - 6	N	ND (2)	2.1	23	ND (1)	ND (1)	---	3.9	1.3	ND (2)	1.1	ND (0.1)	ND (1)	1.9	ND (1)	ND (1)	2.3	7.3	6.8
AOC13-4	12/14/15	0 - 0.5	N	ND (2)	2.9	72 J	ND (1)	ND (1)	ND (0.2)	9.4	3.3	5.2	3.3 J	ND (0.1)	ND (1)	6.3	ND (1)	ND (1)	ND (2)	16	17 J
	12/14/15	0 - 0.5	FD	ND (2)	3.7	96 J	ND (1)	ND (1)	0.31	11	3.8	7.8	8 J	ND (0.1)	ND (1)	7.7	ND (1)	ND (1)	ND (2)	19	22 J
	12/14/15	2 - 3	N	ND (2)	3.4	110	ND (1)	ND (1)	ND (0.2)	10	4	7	2.9	ND (0.1)	ND (1)	7.5	ND (1)	ND (1)	ND (2)	19	19
AOC13-5	01/05/16	0 - 0.5	N	ND (2.2)	3.4	120	ND (1.1)	ND (1.1)	ND (0.22)	17	4.3	7.6	6	ND (0.11)	ND (1.1)	8.6	ND (1.1)	ND (1.1)	ND (2.2)	23	22
	01/05/16	2 - 3	N	ND (2.1)	3	86	ND (1)	ND (1)	ND (0.21)	7.7	2.7	4.5	3	ND (0.1)	ND (1)	5.6	ND (1)	ND (1)	ND (2.1)	16	16
AOC13-6	01/05/16	0 - 0.5	N	ND (2)	3.2	44	ND (1)	ND (1)	0.45	10	2.2	8.4	6.4	0.12	ND (1)	3.8	ND (1)	ND (1)	ND (2)	14	12
	01/05/16	2 - 3	N	ND (2)	2.9	60	ND (1)	ND (1)	ND (0.2)	8.5	2.8	4.7	1.9	ND (0.1)	ND (1)	6.6	ND (1)	ND (1)	ND (2)	17	13

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC13-7	12/14/15	0 - 0.5	N	ND (2.2)	4.8	290	ND (1.1)	1.1	**2.1**	**71**	**27**	**30**	**400**	ND (0.11)	**120**	17	ND (1.1)	ND (1.1)	ND (2.2)	22	**210**
	12/14/15	2 - 3	N	ND (2.1)	2.7	110	ND (1)	ND (1)	0.52	12	2.6	4.6	**17**	ND (0.1)	**2.7**	5	ND (1)	ND (1)	ND (2.1)	13	17
AOC13-8	12/05/15	0 - 1	N	ND (2.1)	3.2	130 J	ND (1)	ND (1)	ND (0.21)	11 J	3.5	5.6	3.6	ND (0.1)	ND (1)	7.4	ND (1)	ND (1)	ND (2.1)	19 J	20 J
	12/05/15	0 - 1	FD	ND (2.1) J	2.7	98 J	ND (1)	ND (1)	ND (0.21)	8.4 J	3.2	4.9	3.4	ND (0.1)	ND (1)	7.1	ND (1) J	ND (1) J	ND (2.1) J	15 J	15 J
	12/05/15	2 - 3	N	ND (2.1)	3.1	29	ND (1)	ND (1)	ND (0.21)	4.5	1.9	2.5	1.7	ND (0.1)	ND (1)	3.8	ND (1)	ND (1)	ND (2.1)	9.2	10
AOC13-9	01/09/16	0 - 0.5	N	ND (2.1)	5.4	150	ND (1)	ND (1)	0.66	**66**	5.3	14	**8.9**	ND (0.11)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	25	**63**
	01/09/16	2 - 3	N	ND (2)	3.7	110	ND (1)	ND (1)	ND (0.2)	6.5	3.5	5	3.2	ND (0.1)	ND (1)	5	ND (1)	ND (1)	ND (2)	16	16
AOC13-Debris	04/26/17 Y	0	N	23	**38**	**640**	ND (1.1)	ND (1.1)	**7.7 J**	**3,800**	3.4	**140**	**62**	3.7	**16**	11	ND (1.1)	ND (1.1)	ND (2.1)	**61**	**1,800**
AOC13-GrabOS1	05/13/08	1	N	3.4	4.2	160	ND (0.1)	0.23	**5.68**	**190**	2.5	**760**	**39**	ND (0.1)	**2.8**	5.9	ND (1)	ND (0.26)	ND (1)	13	**170**
	05/13/08	3	N	ND (0.41)	4.1	62	ND (0.1)	ND (0.1)	ND (0.408)	4.5	1.4	4.1	2.6	ND (0.1)	**2.1**	2	**3**	ND (0.25)	ND (1)	7.2	4.6
	05/14/08	5.5	N	ND (0.41)	4.5	85 J	ND (0.1)	ND (0.1)	ND (0.412)	3.1	2.4	1.7	2.4	ND (0.1)	1.3	2.2	**2.5**	ND (0.26)	ND (1)	7.9	3.4
	05/14/08	5.5	FD	ND (0.41)	4.4	67 J	ND (0.1)	ND (0.1)	ND (0.411)	3.1	2	1.5	2.2	ND (0.1)	1.1	2.1	**2.9**	ND (0.26)	ND (1)	7.3	3.4
AOC13-GrabOS2	05/13/08	1	N	0.77	4.4	89	ND (0.1)	0.29	**10.6**	**44**	4.1	**21**	**330**	0.19	**1.9**	8.3	ND (1)	ND (0.25)	ND (1)	18	53
	05/13/08	3	N	ND (0.41)	3.9	53	ND (0.1)	ND (0.1)	ND (0.41)	3.9	1.2	1.7	2.3	ND (0.1)	0.6	1.8	**2.6**	ND (0.26)	ND (1)	8.4	4.3
	05/13/08	4 - 4.5	N	ND (0.82)	4.8	81	ND (0.1)	ND (0.1)	0.54	8.3	1.4	4	5.6	ND (0.1)	0.81	2.4	**2.3**	ND (0.26)	ND (1)	9.7	8.8
AOC13-OS1	04/06/11	9 - 9.5	N	ND (2)	2.4	47	ND (1)	ND (1)	ND (0.4) J	4.2	1.9	ND (2)	2.7	ND (0.1) J	**2**	4.2	ND (1)	ND (1)	ND (2)	13	9.3
AOC13-OS11	06/26/13	0 - 0.5	N	ND (2)	3.1	140	ND (1)	ND (1)	ND (0.4)	15	4.9	9.5	7.1	ND (0.099)	ND (1)	11	ND (1)	ND (1)	ND (2)	23	28
	06/26/13	2 - 3	N	ND (2)	3.4	160	ND (1)	ND (1)	ND (0.4)	18	4.8	9.4	5.5	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	24	29
	06/26/13	5 - 6	N	ND (2)	3	110	ND (1)	ND (1)	ND (0.4)	6.7	3	5.9	5.8	ND (0.099)	ND (1)	5.6	ND (1)	ND (1)	ND (2)	15	18
AOC13-OS12	06/26/13	0 - 0.5	N	ND (2)	5.5	350	ND (1)	ND (1)	0.48	16	5.9	**27**	**120**	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	25	36
	06/26/13	2 - 3	N	ND (2)	3.5	130	ND (1)	ND (1)	ND (0.4)	15	5.3	7.7	5.5	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	22	28
	06/26/13	2 - 3	FD	ND (2) J	3.2	110	ND (1)	ND (1) J	ND (0.4)	13	4.6	7.7	4.7	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2) J	20	24 J
AOC13-OS13	06/26/13	0 - 0.5	N	ND (2)	3.2	120	ND (1)	ND (1)	ND (0.4)	9.2	5.3	9.9	**10**	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	20	23
	06/26/13	2 - 3	N	ND (2)	3.6	130	ND (1)	ND (1)	ND (0.4)	9.2	5.4	8.5	5.6	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	20	21
AOC13-OS14	07/25/13	0 - 0.5	N	ND (2)	2.8	93	ND (1)	ND (1)	ND (0.4)	14	4	13	7.2	ND (0.1)	ND (1)	8.6	ND (1)	ND (1)	ND (2)	21	22
	07/25/13	2 - 3	N	ND (2)	3.6	84	ND (1)	ND (1)	ND (0.4)	11	4.2	6.7	4.9	ND (0.1)	ND (1)	8.4	ND (1)	ND (1)	ND (2)	25	25
	07/25/13	2 - 3	FD	ND (2) J	3.8	96 J	ND (1)	ND (1)	ND (0.41)	12	4.5	6.7	4.9	ND (0.1)	ND (1)	8.5	ND (1)	ND (1)	ND (2)	26	26
	07/25/13	5 - 6	N	ND (2)	2.8	84	ND (1)	ND (1)	ND (0.41)	11	6.8	10	3.1	ND (0.1)	ND (1)	17	ND (1)	ND (1)	ND (2)	31	23
AOC13-OS2	11/08/11	0 - 0.5	N	ND (2.1)	3.3	130	ND (1)	ND (1)	**1.5**	17	5.6	14	**8.9**	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2.1)	26	37
	11/08/11	2 - 3	N	ND (2)	4.2	150	ND (1)	ND (1)	ND (0.41)	24	7.2	**17**	7.9	0.29	ND (1)	15	ND (1)	ND (1)	ND (2)	36	48
	11/08/11	2 - 3	FD	ND (2)	4.1	140	ND (1)	ND (1)	ND (0.41)	25	7.3	**17**	7.9	0.33	ND (1)	16	ND (1)	ND (1)	ND (2)	37	48
	11/08/11	5 - 6	N	ND (2.1)	3.4	170	ND (1)	ND (1)	ND (0.42)	30	8.2	**41**	7.3	ND (0.1)	ND (1)	25	ND (1)	ND (1)	ND (2.1)	36	**61**
AOC13-OS20	07/26/18	1.3 - 1.7	N	ND (2.1)	5.2	200	ND (1)	ND (1)	ND (0.21)	38	**13**	**20**	2.4	ND (0.1)	ND (1)	**31**	ND (1)	ND (1)	ND (2.1)	47	44
AOC13-OS3	11/08/11	0 - 0.5	N	ND (2.1)	4.7	170	ND (1)	ND (1)	ND (0.42)	21	7.4	**22**	**15**	ND (0.1)	ND (1)	18	ND (1)	ND (1)	ND (2.1)	36	39
	11/08/11	2 - 3	N	ND (2.1)	4.4	99	ND (1)	ND (1)	ND (0.42)	22	8.1	**20**	4.1	ND (0.1)	ND (1)	15	1.2	ND (1)	ND (2.1)	41	44
AOC13-OS4	11/08/11	0 - 0.5	N	ND (2.1)	3.7	160	ND (1.1)	ND (1.1)	ND (0.42)	24	6.4	**18**	7.5	ND (0.1)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	33	**66**
	11/08/11	2 - 3	N	ND (2.1)	4	150	ND (1)	ND (1)	ND (0.41)	20	6	14	5	ND (0.1)	ND (1)	14	ND (1)	ND (1)	ND (2.1)	29	30
	11/08/11	5 - 6	N	ND (2.1)	3.5	150	ND (1.1)	ND (1.1)	ND (0.43)	27	7.8	**32**	6	ND (0.11)	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.1)	37	38

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (2)	2.4	91	ND (1)	ND (1)	**2.6**	**54**	4.8	15	**89 J**	ND (0.1)	ND (1)	9.8	ND (1)	ND (1)	ND (2)	19	**63**
	07/26/11	0 - 0.5	FD	ND (2)	2.4	86	ND (1)	ND (1)	**2.6**	**52**	3.6	15	**56 J**	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	18	**61**
	07/26/11	2 - 3	N	ND (2) J	3.3	140	ND (1)	ND (1)	ND (0.4)	21	6.7	11	6.7	ND (0.1)	ND (1)	14	ND (1)	ND (1)	ND (2) J	31	31 J
	07/26/11	9 - 9.5	N	ND (2)	2.6	110	ND (1)	ND (1)	ND (0.41)	19	5.2	9.3	4.9	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	26	29 J
AOC13-PITOS2	07/26/11	0 - 0.5	N	ND (2)	2.9	150	ND (1)	ND (1)	**0.92**	33	7	**19**	**13**	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2)	31	52 J
	07/26/11	2 - 3	N	ND (2)	3.6	170	ND (1)	ND (1)	ND (0.4)	22	6.1	11	7.4	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	33	34 J
	07/26/11	4 - 4.5	N	ND (2)	3.1	140	ND (1)	ND (1)	ND (0.4)	21	5.7	11	**8.7**	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	29	35 J
AOC13-PITOS3	07/26/11	0 - 0.5	N	ND (2)	3.2	150	ND (1)	ND (1)	ND (0.4)	20	6.1	12	7.2	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	30	33 J
	07/26/11	2 - 3	N	ND (2)	2.9	170	ND (1)	ND (1)	ND (0.4)	20	6.6	11	6.4	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	35	36 J
	07/26/11	2 - 3	FD	ND (2)	2.9	180	ND (1)	ND (1)	ND (0.4)	21	7.5	11	6.1	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	35	35
	07/26/11	6 - 6.5	N	ND (2.1)	2.9	170	ND (1)	ND (1)	ND (0.42)	22	6.6	10	7	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2.1)	34	36 J
AOC13-PITOS6	07/26/11	0 - 0.5	N	ND (2) J	2.7	160	ND (1)	ND (1)	ND (0.4)	20	6.8	12	7	ND (0.099)	ND (1)	12 J	ND (1) J	ND (1)	ND (2) J	35	36
	07/26/11	2 - 3	N	ND (2)	3	180	ND (1)	ND (1)	ND (0.4)	20	6.6	11	7.7	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	33	32
	07/26/11	5 - 6	N	ND (2.1)	2.8	160	ND (1)	ND (1)	ND (0.41)	21	6.6	11	7.2	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2.1)	35	32
	07/26/11	7 - 7.5	N	ND (2)	2.1	180	ND (1)	ND (1)	ND (0.41)	22	7.9	13	7.1	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	38	49
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (2)	2.9	110	ND (1)	ND (1)	ND (0.4)	13	5	13	7.5	ND (0.1)	ND (1)	9.7	ND (1)	ND (1)	ND (2)	25	28
	07/26/11	2 - 3	N	ND (2)	2.5	93	ND (1)	ND (1)	ND (0.4)	12	7.9	12	4.1	ND (0.099)	ND (1)	19	ND (1)	ND (1)	ND (2)	37	25
	07/26/11	2 - 3	FD	ND (2)	1.9	95	ND (1)	ND (1)	ND (0.4)	13	8.5	11	4	ND (0.099)	ND (1)	19	ND (1)	ND (1)	ND (2)	38	26
	07/26/11	5 - 6	N	ND (2)	1.8	96	ND (1)	ND (1)	ND (0.4)	12	8.6	12	3.3	ND (0.1)	ND (1)	20	ND (1)	ND (1)	ND (2)	38	24
	07/26/11	8 - 8.5	N	ND (2)	2.1	110	ND (1)	ND (1)	ND (0.4)	15	6.8	11	5.9	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2)	32	26
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (2)	2.8	130	ND (1)	ND (1)	0.73	22	6.5	12	**14**	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	36	38
	07/26/11	5 - 6	N	ND (2)	2.7	140	ND (1)	ND (1)	ND (0.41)	14	7.5	11	4.6	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2)	37	27
	07/26/11	9 - 10	N	ND (2)	1.8	110	ND (1)	ND (1)	ND (0.4)	14	9.3	13	4	ND (0.1)	ND (1)	21	ND (1)	ND (1)	ND (2)	43	27
	07/26/11	11 - 11.5	N	ND (2)	2	130	ND (1)	ND (1)	ND (0.4)	19	9	13	5.4	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2)	40	32
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (2)	2.7	130	ND (1)	ND (1)	ND (0.4)	23	5.7	11	6.4	ND (0.099)	ND (1)	12	ND (1)	ND (1)	ND (2)	31	37
	07/26/11	2 - 3	N	ND (2)	2.3	110	ND (1)	ND (1)	ND (0.41)	20	7.7	8.9	5.5	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	30	31
	07/26/11	5 - 6	N	ND (2)	2.6	110	ND (1)	ND (1)	ND (0.4)	18	5.5 J	7.8	4.7	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	28	28
	07/26/11	5 - 6	FD	ND (2)	2.4	110	ND (1)	ND (1)	ND (0.4)	17	7.7 J	8.6	4.8	ND (0.1)	ND (1)	9.7	ND (1)	ND (1)	ND (2)	27	26
AOC13-PITOS10	07/26/11	0 - 0.5	N	ND (2)	4.2	140	ND (1)	ND (1)	ND (0.16)	15	5.7	9.1	3.9	ND (0.1)	ND (1)	9.1	ND (1)	ND (1)	ND (2)	34	27 J
	07/26/11	2 - 3	N	ND (2)	2.8	150	ND (1)	ND (1)	0.29	19	6.1	**17**	7.1	ND (0.099)	ND (1)	11	ND (1)	ND (1)	ND (2)	31	35 J
	07/26/11	5 - 6	N	ND (2)	2.8	170	ND (1)	ND (1)	ND (0.16)	18	6.8	12	4.5	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	36	33 J
	07/26/11	7 - 7.5	N	ND (2)	2.4	100	ND (1)	ND (1)	ND (0.16)	12	6.2	12	3.7	ND (0.1)	ND (1)	8.4	ND (1)	ND (1)	ND (2)	26	25 J
AOC13-PITOS11	07/26/11	0 - 0.5	N	ND (2)	2.8	130	ND (1)	ND (1)	ND (0.4)	13	6	9.3	**11**	ND (0.1)	ND (1)	9.5	ND (1)	ND (1)	ND (2)	26	28 J
	07/26/11	2 - 3	N	ND (2)	2.6	82	ND (1)	ND (1)	ND (0.4)	9.7	3.5	5.5	3.8	ND (0.099)	ND (1)	6.9	ND (1)	ND (1)	ND (2)	22	18 J
	07/26/11	2 - 3	FD	ND (2)	2.4	87	ND (1)	ND (1)	ND (0.4)	9.9	3.3	5	3.4	ND (0.1)	ND (1)	6.5	ND (1)	ND (1)	ND (2)	21	16
	07/26/11	5 - 6	N	ND (2)	2.2	130	ND (1)	ND (1)	ND (0.4)	11	6.6	10	4.6	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2)	30	24 J
	07/26/11	7.5 - 8	N	ND (2)	2.3	110	ND (1)	ND (1)	ND (0.16)	11	5.4	**20**	**12**	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	24	23 J

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC13-PITOS12	09/27/11	0 - 0.5	N	ND (2)	3.6	250 J	ND (1)	ND (1)	ND (0.41)	14	5.4	15	**25 J**	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	25 J	**60**
	09/27/11	2 - 3	N	ND (2.1)	4.6	250	ND (1)	ND (1)	ND (0.41)	15	5.9	9.4	6.2	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	28	35
	09/27/11	5 - 6	N	ND (2)	2.9	170	ND (1)	ND (1)	ND (0.41)	18	5.9	10	6.4	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	29	34
	09/27/11	9 - 9.5	N	ND (2)	3.8	240	ND (1)	ND (1)	ND (0.4)	13	4.9	8.7	5.1	ND (0.1)	ND (1)	8.5	ND (1)	ND (1)	ND (2)	27	25
	09/27/11	11 - 11.5	N	ND (2)	1.8	89	ND (1)	ND (1)	ND (0.4)	8.7	3.1	15	3.3	ND (0.1)	ND (1)	6.5	ND (1)	ND (1)	ND (2)	16	16
AOC13-PITOS13	07/26/11	0 - 0.5	N	ND (2)	2.6	140	ND (1)	ND (1)	ND (0.4)	13	4	12	7.4 J	ND (0.1)	ND (1)	6.8	ND (1)	ND (1)	ND (2)	21	25 J
	07/26/11	0 - 0.5	FD	ND (2)	2.9	140	ND (1)	ND (1)	0.44	13	4	12	**21 J**	ND (0.1)	1	6.9	ND (1)	ND (1)	ND (2)	24	25
	07/26/11	2 - 3	N	ND (2) J	2.5	130	ND (1)	ND (1)	ND (0.4)	17	5.4	11	**12 J**	ND (0.1)	ND (1)	9.8	ND (1)	ND (1)	ND (2) J	28	30
	07/26/11	5 - 6	N	ND (2)	2.8	170	ND (1)	ND (1)	ND (0.4)	21	6.2	12	**8.5**	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	32	35
	07/26/11	9 - 9.5	N	ND (2)	ND (1) *	130	ND (1)	ND (1)	ND (0.4)	16	8	9.6	4.3	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	40	34
AOC13-PITOS14	07/26/11	0 - 0.5	N	ND (2)	3.3	150	ND (1)	ND (1)	ND (0.16)	14	5	8.1	**9.6**	ND (0.1)	ND (1)	8.5	ND (1)	ND (1)	ND (2)	25	27 J
	07/26/11	2 - 3	N	ND (2)	3.1	170	ND (1)	ND (1)	0.36	23	6.4	11	7.3	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	33	34 J
	07/26/11	4 - 4.5	N	ND (2)	2.8	140	ND (1)	ND (1)	0.22	16	5.4	9.7	7.3	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	29	29 J
AOC13-Wood	04/26/17 Ж		N	78	**12**	96	ND (1.1)	ND (1.1)	**4.1**	**9,700**	ND (1.1)	**2,400**	**23**	0.47	**15**	1.2	ND (1.1)	ND (1.1)	2.5	7.6	**630**
BH-65	03/24/11	0 - 0.5	N	ND (0.26)	2	94	ND (0.26)	ND (0.26)	0.52	12	3.4	5.2	6.7	ND (0.1)	0.86	9.7	ND (0.26)	ND (0.26)	ND (0.26)	13	21
	03/24/11	2 - 3	N	ND (0.26)	2.8	150	0.28	ND (0.26)	0.79	17	4.3	8.1	**20**	ND (0.12)	0.57	10	ND (0.26)	ND (0.26)	ND (0.26)	17	28
	03/17/11	9 - 10	N	ND (2.1)	1.7	95	ND (1)	ND (1)	ND (0.41)	15	7.1	7.4	3.5	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	38	**66**
	03/17/11	14 - 15	N	ND (2.1)	1.5	140	ND (1)	ND (1)	ND (0.42)	16	9	7.5	3	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2.1)	35	43
	03/17/11	19 - 20	N	ND (2)	1.6	140	ND (1)	ND (1)	ND (0.41)	24	8.4	7	3	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2)	36	50
	03/17/11	29 - 30	N	ND (2) J	0.99	130	ND (1)	ND (1)	ND (0.4)	25	8.6	5.3	1.8 J	ND (0.1)	ND (1) J	11	ND (1) J	ND (1)	ND (2) J	36	39
	03/17/11	37 - 40	N	ND (2.1)	2.5	140	ND (1.1)	ND (1.1)	ND (0.42)	**48**	**14**	**17**	3.8	ND (0.1)	ND (1.1)	**33**	ND (1.1)	ND (1.1)	ND (2.1)	50	41
	03/17/11	49 - 50	N	ND (2.1)	2.7	90	ND (1.1)	ND (1.1)	ND (0.43)	**50**	12	**27**	4.1	ND (0.11)	ND (1.1)	**29**	ND (1.1)	ND (1.1)	ND (2.1)	50	45
	03/17/11	59 - 60	N	ND (2.1)	2.4	73	ND (1)	ND (1)	ND (0.42)	**40**	12	8	3.1	ND (0.1)	ND (1)	**28**	ND (1)	ND (1)	ND (2.1)	51	43
	03/18/11	69 - 70	N	ND (2.1)	2.4	94	ND (1.1)	ND (1.1)	ND (0.42)	23	10	14	2.9	ND (0.1)	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1)	44	43
	03/18/11	79 - 80	N	ND (2.1)	2.5	110	ND (1.1)	ND (1.1)	ND (0.42)	**61**	**13**	**21**	3.7	ND (0.1)	ND (1.1)	**44 J**	ND (1.1)	ND (1.1)	ND (2.1)	**57**	50
	03/18/11	79 - 80	FD	ND (2.1)	2.7	93	ND (1)	ND (1)	ND (0.42)	**53**	12	15	3.5	ND (0.1)	ND (1)	**35 J**	ND (1)	ND (1)	ND (2.1)	**54**	42
	03/18/11	89 - 90	N	ND (2.1)	2.4	49	ND (1.1)	ND (1.1)	ND (0.43)	20	8.8	12	2.8	ND (0.11)	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1)	36	38
	03/18/11	99 - 100	N	ND (2.1) J	3.3	**1,000**	ND (1)	ND (1) J	ND (0.42)	**66**	**16**	**18**	3.4 J	ND (0.1)	ND (1) J	**53**	ND (1) J	ND (1)	ND (2.1) J	**63**	51
	03/18/11	109 - 110	N	ND (2.1)	2.7	88	ND (1.1)	ND (1.1)	ND (0.43)	**49**	11	**20**	4.5	ND (0.11)	ND (1.1)	**34**	ND (1.1)	ND (1.1)	ND (2.1)	50	48
	03/18/11	119 - 120	N	ND (2.1)	2.9	50	ND (1)	ND (1)	ND (0.41)	**50**	**14**	13	2.8	ND (0.1)	ND (1)	**41**	ND (1)	ND (1)	ND (2.1)	**57**	46
	03/19/11	129 - 130	N	ND (2.1)	2.4	56	ND (1)	ND (1)	ND (0.42)	26	8.6	**20**	3	ND (0.11)	ND (1)	20	ND (1)	ND (1)	ND (2.1)	32	36
	03/19/11	139 - 140	N	ND (2.2)	2.6	140	ND (1.1)	ND (1.1)	ND (0.43)	25	9.7	**20**	2.6	ND (0.11)	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.2)	38	44

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
		Commercial Screening Level [1]:		470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
		Background [2]:		NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
BH-66	03/23/11	0 - 0.5	N	ND (0.27)	1.4	70	ND (0.27)	ND (0.27)	ND (0.43)	12	4	5	**8.9**	ND (0.11)	ND (0.27)	11	ND (0.27)	ND (0.27)	ND (0.27)	14	16
	03/23/11	2 - 3	N	ND (0.27)	1.3	62	ND (0.27)	ND (0.27)	ND (0.42)	9.1	3.3	5	3.2	ND (0.11)	ND (0.27)	9.3	ND (0.27)	ND (0.27)	ND (0.27)	11	15
	03/23/11	5 - 6	N	ND (0.28)	1.8	76	0.33	ND (0.28)	ND (0.45)	14	4.9	6.2	2.6	ND (0.1)	ND (0.28)	11	ND (0.28)	ND (0.28)	ND (0.28)	19	26
	04/12/11	14 - 15	N	ND (2.1)	2.3	72 J	ND (1)	ND (1)	ND (0.41)	5.3 J	2	3.8	2.7	ND (0.1)	ND (1)	4	ND (1)	ND (1)	ND (2.1)	12 J	11 J
	04/12/11	14 - 15	FD	ND (2.1)	2.8	100 J	ND (1)	ND (1)	ND (0.42)	15 J	3.5	11	3.8	ND (0.1)	ND (1)	6.7	ND (1)	ND (1)	ND (2.1)	15 J	20 J
	04/12/11	19 - 20	N	ND (2)	2.4	86	ND (1)	ND (1)	ND (0.41)	10	2.2	3	3	ND (0.1)	ND (1)	4.1	ND (1)	ND (1)	ND (2)	12	14
	04/12/11	29 - 30	N	ND (2.1)	2.3	97	ND (1)	ND (1)	ND (0.41)	7	2.2	2.6	2.7	ND (0.1)	ND (1)	4.1	ND (1)	ND (1)	ND (2.1)	12	13
	04/12/11	39 - 40	N	ND (2.1)	2	68	ND (1)	ND (1)	ND (0.41)	28	9.7	9.3	2.7	ND (0.1)	ND (1)	23	ND (1)	ND (1)	ND (2.1)	41	38
	04/12/11	49 - 50	N	ND (2.1) J	2 J	130	ND (1)	ND (1)	ND (0.41)	28	9.9	9.5	3	ND (0.1)	ND (1) J	23	ND (1)	ND (1)	ND (2.1) J	43	41
	04/13/11	59 - 60	N	ND (2.1)	1.8	28	ND (1.1)	ND (1.1)	ND (0.42)	25	8.2	8.1	2.9	ND (0.1)	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1)	35	40
	04/13/11	69 - 70	N	ND (2.1)	2.2	34	ND (1.1)	ND (1.1)	ND (0.43)	18	8.8	13	3.8	ND (0.11)	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1)	39	44
	04/13/11	79 - 80	N	ND (2.1)	1.6	100	ND (1)	ND (1)	ND (0.42)	17	8.7	10	2.7	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2.1)	37	43
	04/13/11	89 - 90	N	ND (2.1)	2	29	ND (1.1)	ND (1.1)	ND (0.43)	18	8	10	3	ND (0.1)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	32	39
	04/13/11	99 - 100	N	ND (2.1)	1.8	80	ND (1.1)	ND (1.1)	ND (0.43)	21	7.8	12	3.6	ND (0.11)	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1)	34	38
	04/13/11	109 - 110	N	ND (2.1)	1.6	120	ND (1.1)	ND (1.1)	ND (0.42)	22	9.1	9.7	3.4	ND (0.1)	ND (1.1)	16	ND (1.1)	ND (1.1)	ND (2.1)	38	41
	04/14/11	119 - 120	N	ND (2.1)	1.7	39 J	ND (1)	ND (1)	ND (0.41)	20	8	12	2.6	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2.1)	33	36
	04/14/11	119 - 120	FD	ND (2.1)	1.7	23 J	ND (1)	ND (1)	ND (0.42)	23	7.7	13	2.8	ND (0.1)	ND (1)	15	ND (1)	ND (1)	ND (2.1)	33	36
	04/14/11	129 - 130	N	ND (2.1)	2.1	51	ND (1.1)	ND (1.1)	ND (0.43)	29	8.3	12	2.7	ND (0.11)	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1)	36	35
BH-67	03/17/11	0 - 0.5	N	ND (2.2)	3.2	120	ND (1.1)	ND (1.1)	ND (0.43)	32	10	14	5	ND (0.11)	ND (1.1)	**29**	ND (1.1)	ND (1.1)	ND (2.2)	45	43
	03/17/11	2 - 3	N	ND (2.1)	2.9	240	ND (1.1)	ND (1.1)	ND (0.42)	11	5.2	3.5	1.8	ND (0.1)	ND (1.1)	7.6	ND (1.1)	ND (1.1)	ND (2.1)	31	28
	03/17/11	5 - 6	N	ND (2)	1.9	27	ND (1)	ND (1)	ND (0.4)	2.8	1.4	ND (2)	2.2	ND (0.1)	ND (1)	2.3	ND (1)	ND (1)	ND (2)	11	6.7
	04/29/11	9 - 10	N	ND (2.1)	2.8	66	ND (1)	ND (1)	ND (0.42)	4.4	2.3	ND (2.1)	2.6	ND (0.1)	ND (1)	4	ND (1)	ND (1)	ND (2.1)	14	12
	04/29/11	14 - 15	N	ND (2)	2.1	35	ND (1)	ND (1)	ND (0.41)	2.4	ND (1)	ND (2)	1.7	ND (0.1)	ND (1)	1.4	ND (1)	ND (1)	ND (2)	7.2	5.7
	04/29/11	19 - 20	N	ND (2)	2.6	110	ND (1)	ND (1)	ND (0.41)	6.6	2.2	2.2	2.6	ND (0.1)	1.2	3.3	ND (1)	ND (1)	ND (2)	14	12
	04/29/11	29 - 30	N	ND (2)	ND (1) *	220	ND (1)	ND (1)	ND (0.41)	18	**14**	4.5	ND (1)	ND (0.1)	**4.6**	12	ND (1)	ND (1)	ND (2)	**56**	**69**
	04/29/11	39 - 40	N	ND (2)	1.9	15	ND (1)	ND (1)	ND (0.4)	2.4	1.1	ND (2)	2	ND (0.1)	ND (1)	1.5	ND (1)	ND (1)	ND (2)	10	5.5
	04/29/11	39 - 40	FD	ND (2)	1.6	15	ND (1)	ND (1)	ND (0.4)	2.1	ND (1)	ND (2)	1.7	ND (0.1)	ND (1)	1.2	ND (1)	ND (1)	ND (2)	8.9	4.5
	04/29/11	49 - 50	N	ND (2.1)	2.7	110	ND (1)	ND (1)	ND (0.42)	12	3.3	2.7	2.8	ND (0.1)	**2.2**	4.5	ND (1)	ND (1)	ND (2.1)	20	17
	04/29/11	59 - 60	N	ND (2.3)	8.8	190	ND (1.2)	ND (1.2)	ND (0.47)	18	4.9	12	**10**	ND (0.12)	**3.5**	13	ND (1.2)	ND (1.2)	ND (2.3)	28	50
	04/29/11	69 - 70	N	ND (2.1)	2.3	110	ND (1)	ND (1)	ND (0.41)	3.2	1.4	ND (2.1)	2.6	ND (0.1)	ND (1)	2	ND (1)	ND (1)	ND (2.1)	8.1	7.8
	04/29/11	79 - 80	N	ND (2.2)	6.9	180	ND (1.1)	ND (1.1)	ND (0.44)	13	4.5	6.3	6.9	ND (0.11)	ND (2.2)	9.3	ND (1.1)	ND (1.1)	ND (2.2)	23	34
	04/29/11	89 - 90	N	ND (2.2)	4.3	74	ND (1.1)	ND (1.1)	0.78	22	8.7	7.1	4.4	ND (0.11)	**3.2**	17	ND (1.1)	ND (1.1)	ND (2.2)	41	39
	04/29/11	99 - 100	N	ND (2.1)	3.4	46	ND (1)	ND (1)	ND (0.41)	22	9.5	7.8	2.9	ND (0.1)	**3.4**	15	ND (1)	ND (1)	ND (2.1)	43	40
	04/29/11	109 - 110	N	ND (2.1)	1.6	48	ND (1)	ND (1)	ND (0.41)	31	12	8.4	3.5	ND (0.1)	**4.9**	19	ND (1)	ND (1)	ND (2.1)	52	50
	04/29/11	119 - 120	N	ND (2.1)	3	44	ND (1)	ND (1)	ND (0.42)	20	9.7	6.6	2.9	ND (0.1)	**3.5**	14	ND (1)	ND (1)	ND (2.1)	43	44
	04/30/11	129 - 130	N	ND (2.1)	3.3	90	ND (1)	ND (1)	ND (0.42)	26	9.5	12	2.6	ND (0.11)	**4.3**	17	ND (1)	ND (1)	ND (2.1)	41	42
	04/30/11	139 - 140	N	ND (2.1)	ND (5.2) *	39	ND (1)	ND (1)	ND (0.42)	15	7.8	ND (10)	ND (5.2)	ND (0.1)	**3.3**	9.8	ND (1)	ND (1)	ND (2.1)	33	36
	04/30/11	139 - 140	FD	ND (2.1)	3.1	36	ND (1.1)	ND (1.1)	ND (0.42)	19	8.9	6.5	2.6	ND (0.1)	**4.2**	13	ND (1.1)	ND (1.1)	ND (2.1)	40	43
	04/30/11	149 - 150	N	ND (2.1)	2.9	**510**	ND (1)	ND (1)	ND (0.41)	17	8.9	ND (10)	1.5	ND (0.1)	**3.3**	12	ND (1)	ND (1)	ND (2.1)	37	36
	04/30/11	159 - 160	N	ND (2.1)	2.4	35	ND (1)	ND (1)	ND (0.41)	19	10	7.3	2.3	ND (0.1)	**3.9**	13	ND (1)	ND (1)	ND (2.1)	44	41

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
BH-68	03/17/11	0 - 0.5	N	ND (2.2)	3.8	130	ND (1.1)	ND (1.1)	ND (0.43)	17	5.7	7.4	4.2	ND (0.11)	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2)	30	29
	03/17/11	0 - 0.5	FD	ND (2.2)	3.5	130	ND (1.1)	ND (1.1)	ND (0.43)	22	7.4	12	5.6	ND (0.11)	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.2)	35	33
	03/17/11	2 - 3	N	ND (2.1)	3.7	55	ND (1.1)	ND (1.1)	ND (0.42)	4.2	1.9	ND (2.1)	2.5	ND (0.11)	ND (1.1)	4.2	ND (1.1)	ND (1.1)	ND (2.1)	11	11
	03/17/11	5 - 6	N	ND (2.3)	1.8	51	ND (1.2)	ND (1.2)	ND (0.47)	4.6	1.9	2.5	3.5	ND (0.12)	ND (1.2)	3.8	ND (1.2)	ND (1.2)	ND (2.3)	12	13
	05/13/11	9 - 10	N	ND (0.26) J	4.6	130	0.61	ND (0.26)	ND (0.42)	12 J	5.8 J	8.5 J	**12 J**	ND (0.11)	1.2	13 J	ND (0.26)	ND (0.26)	ND (0.26)	27	31
	05/13/11	14 - 15	N	ND (0.25)	1.8	14	ND (0.25)	ND (0.25)	ND (0.41)	2.8	1.1	2	2	ND (0.1)	0.92	2.4	ND (0.25)	ND (0.25)	ND (0.25)	6.7	6.3
	05/13/11	19 - 20	N	ND (0.27)	3	200	0.46	ND (0.27)	ND (0.42)	31	8.8	10	3.8	ND (0.11)	0.55	21	ND (0.27)	ND (0.27)	ND (0.27)	39	38
	05/13/11	29 - 30	N	ND (0.26)	2.7	52	0.45	ND (0.26)	ND (0.42)	35	8.8	12	3.3	ND (0.1)	0.45	27	ND (0.26)	ND (0.26)	ND (0.26)	41	38
	05/13/11	39 - 40	N	ND (0.27)	2.6	55	0.51	ND (0.27)	ND (0.42)	32	8.8	16	4.5	ND (0.11)	0.47	27	ND (0.27)	ND (0.27)	ND (0.27)	42	41
	05/13/11	49 - 50	N	ND (0.26)	1.8	46	0.37	ND (0.26)	ND (0.41)	16	6.3	8.5	2.7	ND (0.1)	0.46	12	ND (0.26)	ND (0.26)	ND (0.26)	29	35
	05/13/11	59 - 60	N	ND (0.26)	2.6	100	0.5	ND (0.26)	ND (0.42)	22	7.7	12	3.8	ND (0.11)	0.45	18	ND (0.26)	ND (0.26)	ND (0.26)	35	36
	05/13/11	69 - 70	N	ND (0.26)	2.3	200	0.53	ND (0.26)	ND (0.42)	26	8.8	13	4.2	ND (0.11)	0.5	20	ND (0.26)	ND (0.26)	ND (0.26)	41	39
	05/13/11	79 - 80	N	ND (0.27)	2.5	58	0.55	ND (0.27)	ND (0.42)	36	8.6	13	4	ND (0.11)	0.49	24	ND (0.27)	ND (0.27)	ND (0.27)	40	41
	05/13/11	89 - 90	N	ND (0.27)	3.3	44	0.66	ND (0.27)	ND (0.43)	28	7.9	14	5.9	ND (0.11)	0.62	23	ND (0.27)	ND (0.27)	ND (0.27)	41	38
	05/13/11	99 - 100	N	ND (0.27)	3.2	49	0.67	ND (0.27)	ND (0.44)	37	8.3	**18**	5.3	ND (0.11)	0.62	**30**	ND (0.27)	ND (0.27)	ND (0.27)	45	44
	05/13/11	99 - 100	FD	ND (0.27)	3.1	54	0.58	ND (0.27)	ND (0.43)	38	8.6	16	5.1	ND (0.11)	0.68	**32**	ND (0.27)	ND (0.27)	ND (0.27)	44	41
	05/13/11	109 - 110	N	ND (0.26)	1.9	32	0.42	ND (0.26)	ND (0.42)	16	6.1	11	3.4	ND (0.1)	0.38	13	ND (0.26)	ND (0.26)	ND (0.26)	31	31
	05/13/11	119 - 120	N	ND (0.27)	2.4	58	0.51	ND (0.27)	ND (0.43)	25	8	16	4.2	ND (0.11)	0.49	20	ND (0.27)	ND (0.27)	ND (0.27)	41	38
	05/13/11	129 - 130	N	ND (0.26)	2.1	24	0.39	0.3	ND (0.42)	15	6.3	8.4	2.8	ND (0.11)	0.3	12	ND (0.26)	ND (0.26)	ND (0.26)	29	31
	05/14/11	139 - 140	N	ND (0.27)	3.8	120	0.61	ND (0.27)	ND (0.43)	**45**	11	**19**	6.1	ND (0.11)	0.87	**35**	ND (0.27)	ND (0.27)	ND (0.27)	48	46
	05/14/11	149 - 150	N	ND (0.26)	3.8	68	0.5	ND (0.26)	ND (0.42)	**48**	11	**19**	4.3	ND (0.11)	0.76	**39**	ND (0.26)	ND (0.26)	ND (0.26)	50	42
	05/14/11	159 - 160	N	ND (0.26)	2.9	34	0.41	ND (0.26)	ND (0.42)	22	8.8	13	3.2	ND (0.11)	0.43	19	ND (0.26)	ND (0.26)	ND (0.26)	38	38
PA-02	11/09/15	0 - 1	N	ND (2)	3	88	ND (1)	ND (1)	**2.2**	31	4.9	9.4	**20**	0.15	ND (1)	10	ND (1)	ND (1)	ND (2)	20	42
PA-22	01/27/16	0 - 1	N	ND (2.1)	5.3	97	ND (1)	ND (1)	ND (0.21)	**49**	5.4	**25**	**32**	ND (0.1)	1.2	12	ND (1)	ND (1)	ND (2.1)	28	**140**
PA-OS3	12/10/14	0.5	N	ND (2.1)	3.4	130	ND (1)	ND (1)	0.7	31	6.9	11	**8.5**	ND (0.1)	ND (1)	19	ND (1)	ND (1)	ND (2.1)	36	53
	12/10/14	3	N	ND (2.1)	3.9	200	ND (1)	ND (1)	0.35	**53**	12	13	4.4	ND (0.1)	ND (1)	**37**	1.1	ND (1)	ND (2.1)	**54**	41
PGE-LT-OS5	03/08/07	0.5	N	ND (6.1) J	2.6	72	ND (0.51)	ND (0.51)	ND (0.2)	9.1	ND (5.1)	9.7	3.2	ND (0.1)	ND (4.1)	7.3	ND (0.51)	ND (1)	ND (1)	19	18
	03/08/07	3	N	ND (6.2)	3	180	ND (0.51)	ND (0.51)	ND (0.21)	22	8.1	**20**	2.4	ND (0.1)	ND (4.1)	14	ND (0.51)	ND (1)	1.2	44	42
PGE-LT-OS6	03/08/07	0.5	N	ND (6.1)	2.8	190	ND (0.51)	ND (0.51)	ND (0.2)	29	7.9	**30**	4.3	ND (0.1)	ND (4.1)	18	ND (0.51)	ND (1)	ND (1)	46	46
	03/08/07	3	N	ND (6.2)	3.6	190	ND (0.52)	ND (0.52)	ND (0.21)	25	7.4	**37**	4.9	ND (0.1)	ND (4.1)	17	ND (0.52)	ND (1)	ND (1)	42	46
PGE-LT-OS7	03/08/07	0.5	N	ND (6.1)	5.4	180	0.54	ND (0.51)	ND (0.2)	27	8.5	**37**	7.4	ND (0.1)	ND (4.1)	23	ND (0.51)	ND (1)	ND (1)	41	52
	03/08/07	3	N	ND (6.1)	3.3	60	ND (0.51)	ND (0.51)	ND (0.2)	10	ND (5.1)	7.8	4.8	ND (0.1)	ND (4.1)	9.3	ND (0.51)	ND (1)	ND (1)	20	18
PGE-LT-OS8	03/08/07	0.5	N	ND (6.2)	2.5	170	ND (0.51)	ND (0.51)	ND (0.21)	**41**	7.4	14	8	ND (0.1)	ND (4.1)	24	ND (0.51)	ND (1)	ND (1)	34	38
	03/08/07	3	N	ND (6.1)	3.1	98	ND (0.51)	ND (0.51)	ND (0.2)	15	ND (5.1)	**17**	4.6	ND (0.1)	ND (4.1)	13	0.52	ND (1)	ND (1)	28	28
PGE-LT-OS9	03/08/07	0.5	N	ND (6.2)	2.5	180	ND (0.52)	ND (0.52)	ND (0.21)	26	6.9	**18**	5	ND (0.1)	ND (4.2)	17	ND (0.52)	ND (1)	ND (1)	36	38
	03/08/07	3	N	ND (6.2)	2.8	190	ND (0.51)	0.56	ND (0.21)	34	8.7	**35**	6.3	ND (0.1)	ND (4.1)	25	ND (0.51)	ND (1)	ND (1)	46	46
PGE-UTOS1	03/08/07	0.5	N	ND (6.2)	3.9	190	ND (0.52)	ND (0.52)	ND (0.21)	18	6.1	**54**	**9.4**	ND (0.1)	ND (4.2)	13	ND (0.52)	ND (1)	ND (1)	33	**60**
	03/08/07	3	N	ND (6.1)	4.8	170	ND (0.51)	ND (0.51)	ND (0.2)	15	5.8	**25**	3.7	ND (0.1)	ND (4.1)	11	ND (0.51)	ND (1)	ND (1)	32	34
PGE-UTOS2	03/08/07	0.5	N	ND (6.2)	3.9	180	ND (0.52)	ND (0.52)	ND (0.21)	18	5.6	**29**	**56**	0.41	ND (4.1)	12	ND (0.52)	ND (1)	ND (1)	32	51
	03/08/07	3	N	ND (6.2)	3	69	ND (0.51)	ND (0.51)	ND (0.21)	19	ND (5.1)	**43**	4.3	ND (0.1)	ND (4.1)	14	ND (0.51)	ND (1)	ND (1)	26	37

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
			Background [2]:	NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
PGE-UTOS3	03/08/07	0.5	N	ND (6.3)	3.3	85	ND (0.52)	ND (0.52)	ND (0.21)	14	5.3	**26**	**8.4**	ND (0.1)	ND (4.2)	10	0.86	ND (1)	ND (1)	31	40
	03/08/07	3	N	ND (6.4)	3.6	140	ND (0.53)	ND (0.53)	ND (0.21)	23	8.3	**22**	4.8	ND (0.11)	ND (4.2)	23	ND (0.53)	ND (1.1)	ND (1.1)	41	39
PGE-UTOS4	03/08/07	0.5	N	ND (6.2)	3	160	ND (0.52)	0.53	0.48	36	5.4	**35**	**18**	ND (0.1)	**6.5**	12	ND (0.52)	ND (1)	ND (1)	30	**130**
	03/08/07	3	N	ND (6.3)	3.4	140	ND (0.52)	ND (0.52)	ND (0.21)	22	5.5	**26**	7.5	ND (0.1)	ND (4.2)	13	ND (0.52)	ND (1)	ND (1)	31	55
PS-8	04/13/99	0	N	---	---	---	---	---	**12.2**	**743**	---	**76.6**	---	---	---	12.9	---	---	---	---	**315**
	04/13/99	3	N	---	---	---	---	---	**1**	17.3	---	**30.2**	---	---	---	6	---	---	---	---	26.9
PS-9	04/13/99	0	N	---	---	---	---	---	**1.3**	**66.7**	---	**40.4**	---	---	---	12.2	---	---	---	---	**169**
PS-10	04/13/99	0	N	---	---	---	---	---	ND (0.51)	20.5	---	6.8	---	---	---	6.4	---	---	---	---	52.4
PS-11	04/13/99	0	N	---	---	---	---	---	**5.2**	**154**	---	**18**	---	---	---	17.6	---	---	---	---	43
PS-12	04/13/99	0	N	---	---	---	---	---	**7.6**	**321**	---	13.5	---	---	---	8.6	---	---	---	---	51.8
PS-17	04/13/99	0	N	---	---	---	---	---	ND (0.51)	14.6	---	8.2	---	---	---	7.4	---	---	---	---	32.4
	04/13/99	3	N	---	---	---	---	---	ND (0.52)	12.6	---	**35**	---	---	---	9.2	---	---	---	---	44
PS-18	04/13/99	0	N	---	---	---	---	---	0.7	24.6	---	12.1	---	---	---	13	---	---	---	---	49.1
PS-19	04/13/99	0	N	---	---	---	---	---	ND (0.51)	31.8	---	**19.6**	---	---	---	17.7	---	---	---	---	**69.5**
PS-20	04/13/99	0	N	---	---	---	---	---	0.6	15.8	---	11	---	---	---	10.7	---	---	---	---	45.5
SD-24	03/09/16	0 - 1	N	ND (2.1)	4.2	140	ND (1)	**1.2**	ND (0.21)	16	4.9	**58**	**22**	ND (0.1)	**2.5**	9.6	ND (1)	ND (1)	ND (2.1)	20	**1,000**
	03/09/16	2 - 3	N	ND (2.1)	3	88	ND (1.1)	ND (1.1)	ND (0.21)	11	3.9	6.1	5.3	ND (0.11)	ND (1.1)	7.3	ND (1.1)	ND (1.1)	ND (2.1)	19	21
SD-28	02/05/17	0 - 0.5	N	ND (2.1)	4.7	75	ND (1)	ND (1)	ND (0.21)	13	5	6.6	3.7	ND (0.1)	ND (1)	10	ND (1) J	ND (1)	ND (2.1)	16	30
	02/05/17	2 - 3	N	ND (2.2)	4.4	110	ND (1.1)	ND (1.1)	ND (0.22)	13	5.4	9.2	4.1	ND (0.11)	ND (1.1)	10	ND (1.1) J	ND (1.1)	ND (2.2)	19	30
	02/05/17	5 - 6	N	ND (2.2)	3.7	140	ND (1.1)	ND (1.1)	ND (0.21)	15	6.8	11	2.9	ND (0.11)	ND (1.1)	13	ND (1.1) J	ND (1.1)	ND (2.2)	25	31
	02/05/17	9 - 10	N	ND (2.1)	3.8	120	ND (1.1)	ND (1.1)	ND (0.22)	13	6.4	10	3.4	ND (0.11)	ND (1.1)	12	ND (1.1) J	ND (1.1)	ND (2.1)	22	28
SD-29	02/04/17	0 - 0.5	N	ND (2.2)	3.5	250	ND (1.1)	ND (1.1)	0.62	22	5.2	9.9	8.1	ND (0.11)	ND (1.1)	11	ND (1.1) J	ND (1.1)	ND (2.2)	21	35
	02/04/17	2 - 3	N	ND (2.2)	2.8	68	ND (1.1)	ND (1.1)	ND (0.22)	10	2.8	4.1	1.8	ND (0.11)	ND (1.1)	5.8	ND (1.1) J	ND (1.1)	ND (2.2)	12	14
	02/05/17	4.5 - 5	N	ND (2.1)	3.1	55	ND (1.1)	ND (1.1)	ND (0.21)	5.7	2	3.4	2.2	ND (0.11)	ND (1.1)	3	ND (1.1) J	ND (1.1)	ND (2.1)	8.7	12
	02/05/17	7.5 - 8	N	ND (2.1)	2.5	110	ND (1)	ND (1)	ND (0.21)	4.3	1.6	2.9	1.5	ND (0.1)	ND (1)	2.3	ND (1) J	ND (1)	ND (2.1)	6.2	8.6
SD-31	02/15/17	0 - 0.5	N	ND (2.1)	3.8	110	ND (1)	ND (1)	**1.4 J**	**170 J**	4.1	**20 J**	**27**	ND (0.1)	ND (1)	7.9 J	ND (1) J	ND (1) J	ND (2.1) J	17	**180 J**
	02/15/17	0 - 0.5	FD	ND (2.1)	4.7	110	ND (1)	**2**	**1.1 J**	**45 J**	4.6	**71 J**	**31**	ND (0.1)	ND (1)	11 J	ND (1) J	ND (1) J	ND (2.1) J	14	**130 J**
	02/15/17	1 - 2	N	ND (2.1)	3.4	100	ND (1)	**1.4**	**1.6**	37	5.2	**37**	**30**	ND (0.1)	ND (1)	12	ND (1) J	ND (1) J	ND (2.1) J	17	**500**
	02/15/17	2 - 3	N	ND (2.1)	3.1	89	ND (1)	ND (1)	0.28	15	3.9	6.1	3	ND (0.1)	ND (1)	5.5	ND (1) J	ND (1) J	ND (2.1) J	16	39
SD-07	12/17/15	0 - 1	N	ND (2)	3	39	ND (1)	ND (1)	ND (0.2)	5.1	2.4	3.7	3.1	ND (0.1)	ND (1)	4.1	ND (1)	ND (1)	ND (2)	11	**400**
	12/17/15	2 - 3	N	ND (2)	4.3	110	ND (1)	ND (1)	0.24	7.1	2.9	6	**190**	ND (0.1)	ND (1)	5.3	ND (1)	ND (1)	ND (2)	16	47
	12/18/15	5 - 6	N	ND (2.1)	3.8	40	ND (1)	ND (1)	0.21	7.6	3.9	6.9	6.7	ND (0.1)	ND (1)	7.1	ND (1)	ND (1)	ND (2.1)	25	21
	12/18/15	9 - 10	N	ND (2)	4	43	ND (1)	ND (1)	ND (0.21)	15	3.2	4.4	**8.6**	ND (0.1)	ND (1)	6.2	ND (1)	ND (1)	ND (2)	16	14
	12/18/15	9 - 10	FD	ND (2.1)	3.7	30	ND (1)	ND (1)	ND (0.2)	4.3	2.4	4.2	5.5	ND (0.1)	ND (1)	3.7	ND (1)	ND (1)	ND (2.1)	12	12
SD-OS30	07/18/17	0 - 0.5	N	ND (2)	4.2	110	ND (1)	ND (1)	ND (0.2)	27	6.2	**20**	**9.2**	ND (0.1)	ND (1)	14	ND (1)	ND (1)	2.3	25	55
	07/18/17	2 - 3	N	ND (2.1)	3.6	170	ND (1.1)	ND (1.1)	ND (0.21)	20	6.4	11	3.4	ND (0.11)	ND (1.1)	14	ND (1.1)	ND (1.1)	2.4	27	35
	07/18/17	4 - 5	N	ND (2.2)	2.7	200	ND (1.1)	ND (1.1)	0.31	23	6.4	13	3.2	ND (0.11)	ND (1.1)	14	ND (1.1)	ND (1.1)	2.5	27	31
	07/18/17	5 - 6	N	ND (2.2)	3.1	200	ND (1.1)	ND (1.1)	0.5	34	6.6	13	4.7	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2)	28	37
	07/18/17	7 - 8	N	ND (2.2)	4.3	210	ND (1.1)	ND (1.1)	0.48	24	7.1	14	2.2	ND (0.11)	ND (1.1)	16	ND (1.1)	ND (1.1)	2.8	29	30

TABLE 3-23a

Sample Results: Metals

AOC 13 – Unpaved Areas within the Compressor Station

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
		Commercial Screening Level [1]:		**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
		Background [2]:		**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
SD-OS34	12/02/16	0 - 0.5	N	ND (2.1)	5.7	170	ND (1.1)	**3**	**8.4**	**160**	4.8	**470**	**550**	0.95	**7.6**	24	ND (1.1) J	ND (1.1)	ND (2.1) J	12	**400**
	12/02/16	0.5 - 1	N	6.1	9.4	**1,000**	ND (1.4)	**10**	**3.6**	**330**	**18**	**830**	**1,100**	25	**73**	**210**	ND (1.4) J	ND (1.4)	ND (2.8) J	14	**1,900**
	12/02/16	1 - 1.5	N	ND (2.1)	4	100	ND (1)	**4.6**	**4.3**	**160**	4.7	**490**	**520**	2.5	1.2	13	ND (1) J	ND (1)	ND (2.1) J	9.7	**400**
	12/03/16	2 - 3	N	ND (2.1)	2.9	57	ND (1)	ND (1)	0.51	12	2.9	**35**	**26**	ND (0.1)	ND (1)	5.4	ND (1) J	ND (1)	ND (2.1) J	10	48
	12/03/16	5 - 6	N	ND (2)	2.1	62	ND (1)	ND (1)	0.8	16 J	1.8	**42 J**	**36 J**	ND (0.1)	ND (1)	4.3	ND (1) J	ND (1)	ND (2) J	7.6	**60 J**
	12/03/16	5 - 6	FD	ND (2)	1.9	62	ND (1)	ND (1)	0.31	9.5 J	2	**23 J**	**62 J**	ND (0.1)	ND (1)	2.9	ND (1) J	ND (1)	ND (2) J	8.3	46 J
SD-OS34A	12/02/16	0 - 0.5	N	ND (2)	3.3	100	ND (1)	**1.2**	**2**	28	4	**170**	**84**	0.13	**3.1**	9.9	ND (1) J	ND (1)	ND (2) J	11	**240**
	12/02/16	1 - 1.5	N	ND (2.1)	2.9	68	ND (1.1)	ND (1.1)	**1**	15	3.2	**60**	**34**	0.41	ND (1.1)	7	ND (1.1) J	ND (1.1)	ND (2.1) J	11	**67**
	12/02/16	2 - 3	N	ND (2)	2.1	50	ND (1)	ND (1)	**2.1**	10	1.8	**32**	**28**	0.11	ND (1)	5.4	ND (1) J	ND (1)	ND (2) J	6.9	43
	12/02/16	5 - 6	N	ND (2)	2.2	35	ND (1)	ND (1)	ND (0.2)	3.2	1.5	6.3	3.2	ND (0.1)	ND (1)	2.1	ND (1) J	ND (1)	ND (2) J	5.7	9.5
SD-OS35	12/04/16	0 - 0.5	N	ND (2.1)	3.4	140	ND (1)	ND (1)	**2.6**	**63**	2.9	**160**	**40**	0.33	ND (1)	6.1	ND (1)	ND (1) J	ND (2.1)	9.7	**130**
	12/04/16	2 - 3	N	ND (2.1)	3.4	160	ND (1.1)	ND (1.1)	0.52	18	3.5	12	3.5	ND (0.11)	ND (1.1)	5.3	ND (1.1)	ND (1.1)	ND (2.1)	15	19
	12/05/16	4.5 - 5.5	N	ND (2)	2.5	78	ND (1)	ND (1)	0.23	15	2	**23**	**24**	ND (0.1)	ND (1)	2.7	ND (1) J	ND (1)	ND (2) J	8.1	35
SD-OS35A	12/05/16	0 - 0.5	N	ND (2)	2.9	85	ND (1)	ND (1)	0.69	14	3.7	**17**	**12**	ND (0.1)	ND (1)	7.1	ND (1) J	ND (1)	ND (2) J	12	**75**
	12/05/16	2 - 3	N	ND (2.1)	2.9	100	ND (1)	ND (1)	0.28	11	3.4	5.8	3	ND (0.1)	ND (1)	5.4	ND (1) J	ND (1)	ND (2.1) J	13	19
	12/05/16	4.5 - 5.5	N	ND (2.1)	3.6	190	ND (1)	**1.3**	**2.5**	**86**	4	**590**	**70**	ND (0.1)	ND (1)	10	ND (1) J	ND (1)	ND (2.1) J	19	**220**
SD-OS36	12/01/16	0 - 0.5	N	ND (2.1)	3	100	ND (1.1)	ND (1.1)	**1.4**	**50**	3.7	15	**25**	ND (0.1)	ND (1.1)	7.8	ND (1.1) J	ND (1.1)	ND (2.1) J	15	**64**
	12/01/16	2.5 - 3	N	ND (2.1)	2.3	43	ND (1)	ND (1)	ND (0.21)	5.3	2.2	3.5	2.4	ND (0.1)	ND (1)	4	ND (1) J	ND (1)	ND (2.1) J	8.6	11
	12/01/16	5 - 6	N	ND (2)	2.3	51	ND (1)	ND (1)	ND (0.2)	5	1.9	3.1	2.1	ND (0.1)	ND (1)	3.2	ND (1) J	ND (1)	ND (2) J	8.8	10
SD-OS38	12/13/16	0 - 0.5	N	ND (2) J	3.8	140	ND (1)	ND (1) J	ND (0.2)	19	4.8	10	5.9 J	ND (0.1)	**1.4**	10	ND (1) J	ND (1)	ND (2) J	23	32
	12/13/16	3 - 4	N	ND (2.1) J	3	96	ND (1.1)	ND (1.1) J	0.3	19	4.1	12	4.8 J	ND (0.11)	**3.8**	6.4	ND (1.1) J	ND (1.1)	ND (2.1) J	19	25
SD-OS39	11/29/16	0 - 0.5	N	ND (2)	3.2	110	ND (1)	ND (1)	0.46	26	6.6	13	**10**	ND (0.1)	ND (1)	14	ND (1) J	ND (1) J	ND (2) J	23	44
	11/29/16	0 - 0.5	FD	ND (2)	3	110	ND (1)	ND (1)	0.52	30	6.4	12	**10**	ND (0.099)	ND (1)	14	ND (1) J	ND (1)	ND (2) J	23	49
	11/29/16	2.5 - 3	N	ND (2.1)	3.3	120	ND (1)	ND (1)	ND (0.21)	9.1	3.5	5.5	3.2	ND (0.1)	ND (1)	6	ND (1) J	ND (1)	ND (2.1) J	15	17
	11/29/16	2.5 - 3	FD	ND (2.1)	3.1	100	ND (1)	ND (1)	ND (0.21)	11	3.2	7.1	3.5	ND (0.1)	ND (1)	6	ND (1) J	ND (1)	ND (2.1) J	14	18
SD-OS40	12/06/16	0 - 0.5	N	ND (2)	3.5	130	ND (1)	ND (1)	ND (0.2)	11	4.3	7.3	3.2	ND (0.1)	ND (1)	7.2	ND (1) J	ND (1)	ND (2) J	17	24
	12/06/16	2 - 3	N	ND (2.1)	3.6	150	ND (1.1)	ND (1.1)	ND (0.21)	11	4.5	7.1	3.2	ND (0.11)	ND (1.1)	7.5	ND (1.1) J	ND (1.1)	ND (2.1) J	19	25
	12/09/16	5 - 6	N	ND (2.1) J	3.7	150	ND (1.1)	ND (1.1) J	ND (0.21)	12	5.5 J	9.4	4.8 J	ND (0.11)	ND (1.1)	8.7	ND (1.1) J	ND (1.1)	ND (2.1) J	23	30 J
	12/06/16	5 - 5.5	N	ND (2.1)	3.9	99	ND (1)	ND (1)	ND (0.21)	12	4.6	7.1	2.7	ND (0.1)	ND (1)	8	ND (1) J	ND (1)	ND (2.1) J	19	24
	12/09/16	6 - 7	N	ND (2.3) J	3.2	55	ND (1.1)	ND (1.1) J	ND (0.23)	23	5.9	**63**	**8.5 J**	ND (0.11)	**2.2**	8	ND (1.1) J	ND (1.1)	ND (2.3) J	17	**75**
	12/11/16	7 - 8	N	ND (2.1) J	3.5	130	ND (1.1)	ND (1.1) J	ND (0.21)	9	3.7	5.1	2.9 J	ND (0.11)	ND (1.1)	4.5	ND (1.1) J	ND (1.1)	ND (2.1) J	17	20
	12/09/16	7 - 8	N	ND (2.1) J	3	120	ND (1.1)	ND (1.1) J	0.65	20	4.5	8.8	2.3 J	ND (0.11)	ND (1.1)	6.7	ND (1.1) J	ND (1.1)	ND (2.1) J	19	23
	12/09/16	9 - 10	N	ND (2.1) J	3.2	170	ND (1.1)	ND (1.1) J	0.45	14	3.1	5.3	1.6 J	ND (0.1)	ND (1.1)	4.2	ND (1.1) J	ND (1.1)	ND (2.1) J	16	17
SD-OS41	12/13/16	0 - 0.5	N	ND (2) J	3	110	ND (1)	ND (1) J	ND (0.2)	11	5	8.6	7.2 J	ND (0.1)	ND (1)	7.9	ND (1) J	ND (1)	ND (2) J	20	26
	12/13/16	2 - 3	N	ND (2.1) J	3.3	160	ND (1.1)	ND (1.1) J	ND (0.21)	17	5.4	8.7	3.1 J	ND (0.1)	1.2	9.9	ND (1.1) J	ND (1.1)	ND (2.1) J	25	25
	12/14/16	5 - 6	N	ND (2.3) J	3.6	170	ND (1.1)	ND (1.1) J	0.32	26	5.9	12	**35 J**	ND (0.11)	**7.6**	11	ND (1.1) J	ND (1.1)	ND (2.3) J	26	36
	12/14/16	8 - 8.5	N	ND (2.2) J	3.5	150	ND (1.1)	ND (1.1) J	**1.5**	**58**	5.1	9.5	**8.8 J**	ND (0.11)	**4.7**	8.9	ND (1.1) J	ND (1.1)	ND (2.2) J	24	30

				Metals (mg/kg)																	
Commercial Screening Level [1]**:**				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]**:**				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Antimony**	**Arsenic** [3]	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
SD-OS42	07/17/17	0 - 0.5	N	ND (2.1)	3.7	88	ND (1)	ND (1)	0.34	17	5.4	13	**9.9 J**	ND (0.1)	**2.4**	10	ND (1)	ND (1)	2.5	24	39
	07/17/17	0 - 0.5	FD	ND (2.1)	4	81	ND (1)	ND (1)	ND (0.21)	18	5.9	15	6.5 J	ND (0.1)	1.3	12	ND (1)	ND (1)	2.5	25	38
	07/17/17	2 - 3	N	ND (2.1)	3.7	100	ND (1)	ND (1)	ND (0.21)	8.1	2.8	3.9	2.1	ND (0.11)	ND (1)	4.6	ND (1)	ND (1)	2.6	14	13
	07/17/17	3 - 4	N	ND (4.7)	**50**	**520**	ND (2.4)	**26**	ND (0.47)	**780**	**15**	**730**	**1,100**	2.2	**220**	**34**	ND (2.4)	ND (2.4)	5.9	**54**	**2,200**
	07/17/17	5 - 6	N	ND (2)	4.3	65	ND (1)	ND (1)	0.82	18	2.2	7	6.6	ND (0.1)	ND (1)	3.8	ND (1)	ND (1)	2.6	11	25
SD-OS43	07/18/17	0 - 0.5	N	ND (2)	3.6	100	ND (1)	ND (1)	0.46	22	5.7	9.3	6.5	ND (0.099)	**1.4**	9.7	ND (1)	ND (1)	2.4	22	35
	07/18/17	2 - 3	N	ND (2)	4	130	ND (1)	ND (1)	ND (0.2)	8.4	3.8	4.8	2	ND (0.1)	ND (1)	5.9	ND (1)	ND (1)	2.3	18	19
	07/18/17	5 - 6	N	ND (2)	4.5	150	ND (1)	ND (1)	ND (0.2)	8.1	3.1	5.9	2.6	ND (0.1)	ND (1)	4.7	ND (1)	ND (1)	2.5	17	20
SD-OS44	07/19/17	0 - 0.5	N	ND (2)	4.6	63	ND (1)	ND (1)	ND (0.2)	8	2.8	4.6	2.3	ND (0.1)	ND (1)	5.9	ND (1)	ND (1)	4.4	16	18
	07/19/17	2 - 3	N	ND (2.1)	3.4	57	ND (1.1)	ND (1.1)	ND (0.21)	6.6	2.2	2.9	1.6	ND (0.1)	ND (1.1)	3.9	ND (1.1)	ND (1.1)	3.9	14	13
	07/19/17	5 - 6	N	ND (2.1)	2.4	55	ND (1)	ND (1)	ND (0.21)	5.4	2.4	3.5	1.6	ND (0.1)	ND (1)	3.8	ND (1)	ND (1)	4	15	15
TD-3	11/12/15	0	N	ND (2.2)	3.2	100	ND (1.1)	ND (1.1)	0.3	**43**	9.2	**35**	7.3	ND (0.11)	ND (1.1)	**32**	ND (1.1)	ND (1.1)	ND (2.2)	34	**240**
TD-4	11/12/15	0	N	ND (2.1)	4.5	130	ND (1)	ND (1)	ND (0.21)	15	5.4	**58**	**14**	ND (0.1)	**6.9**	12	ND (1)	ND (1)	ND (2.1)	20	**540**
Category 2																					
BGCS-1	09/08/88	0.5	N	ND (0.3)	2	150	ND (1)	ND (0.5)	ND (1)	**47**	**17**	ND (3)	6	0.022	ND (1)	**56**	ND (0.5)	ND (1)	ND (1)	40	**75**
	09/08/88	1	N	ND (0.3)	2.2	150	**1**	ND (0.5)	ND (1)	ND (3)	**18**	ND (3)	5	0.027	ND (1)	**38**	ND (0.5)	ND (1)	ND (1)	39	**270**
	09/08/88	1.5	N	ND (0.3)	2.2	49	ND (1)	ND (0.5)	ND (1)	19	**14**	ND (3)	7	0.03	ND (1)	**34**	ND (0.5)	ND (1)	ND (1)	36	**61**
BGCS-2	09/08/88	0.5	N	ND (0.3)	3.37	190	ND (1)	ND (0.5)	---	11	9	ND (3)	5	0.051	ND (1)	16	ND (0.5)	ND (1)	ND (1)	29	47
	09/08/88	0.5	FD	---	---	---	---	---	---	9	---	ND (3)	---	---	---	12	---	---	---	---	41
	09/08/88	1	N	8.5	3.6	270	ND (0.2)	0.8	ND (1)	24	6	**26**	6.7	0.034	**1.4**	17	0.11	ND (0.2)	ND (0.3)	22	54
	09/08/88	1.5	N	7.5	2.5	210	ND (1)	**2.4**	ND (1)	15	7	15	**9**	0.029	ND (1)	12	ND (0.5)	ND (1)	ND (1)	23	29
BGCS-3	09/08/88	0.5	N	ND (0.3)	1.5	160	ND (1)	ND (0.5)	ND (1)	22	9	ND (3)	**9**	0.037	ND (1)	21	ND (0.5)	ND (1)	ND (1)	26	**91**
	09/08/88	1	N	ND (0.3)	3.3	220	ND (0.2)	**14**	ND (1)	26	9	11	**15**	0.09	**2.1**	18	0.14	ND (0.2)	ND (0.3)	23	**76**
	09/08/88	1.5	N	ND (0.3)	1.8	180	ND (1)	ND (0.5)	ND (1)	7	10	ND (3)	4	0.036	ND (1)	13	ND (0.5)	ND (1)	ND (1)	27	**82**
BGCS-4	09/08/88	0.5	N	ND (0.3)	1.9	180	ND (1)	ND (0.5)	ND (1)	12	9	ND (3)	7	0.064	ND (1)	17	ND (0.5)	ND (1)	ND (1)	24	**86**
	09/08/88	1	N	ND (0.3)	2.42	220	ND (1)	ND (0.5)	ND (1)	11	9	ND (3)	8	0.046	ND (1)	19	ND (0.5)	ND (1)	ND (1)	29	**85**
	09/08/88	1.5	N	ND (0.3)	1.5	150	ND (1)	ND (0.5)	ND (1)	9	9	ND (3)	6	0.026	ND (1)	15	ND (0.5)	ND (1)	ND (1)	28	**74**
BGCS-5	09/08/88	0.5	N	ND (0.3)	2.4	190	ND (1)	ND (0.5)	ND (1)	14	9	ND (3)	**10**	0.03	ND (1)	23	ND (0.5)	ND (1)	ND (1)	27	7.9
	09/08/88	1	N	ND (0.3)	2.1	160	ND (1)	ND (0.5)	ND (1)	16	8	ND (3)	8	0.134	ND (1)	**28**	ND (0.5)	ND (1)	ND (1)	25	**76**
	09/08/88	1.5	N	ND (0.3)	2.2	160	ND (1)	ND (0.5)	ND (1)	6	8	ND (3)	7	0.074	ND (1)	14	ND (0.5)	ND (1)	ND (1)	20	**69**
BGCS-6	09/08/88	0.5	N	ND (0.3)	1.7	300	ND (1)	ND (0.5)	ND (1)	23	10	ND (3)	**12**	0.038	ND (1)	**30**	ND (0.5)	ND (1)	ND (1)	27	**77**
	09/08/88	1	N	ND (0.3)	1.8	220	ND (1)	ND (0.5)	ND (1)	17	9	ND (3)	7	0.042	ND (1)	20	ND (0.5)	ND (1)	ND (1)	21	46
	09/08/88	1.5	N	ND (3)	2	230	ND (1)	ND (0.5)	ND (1)	10	7	ND (3)	7	0.047	ND (1)	12	ND (0.5)	ND (1)	ND (1)	18	43
Spill04292006_SS1	05/02/06	0	N	5	4.1	140	0.5	0.5	---	30	6.3	16	**11**	0.13	**5.3**	16	0.5	0.5	5	35	30
Spill10011995_C1	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.72	---	---	---	---	---	---	---
Spill10011995_C2	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.76	---	---	---	---	---	---	---
Spill10011995_C3	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.55	---	---	---	---	---	---	---
Spill10011995_C4	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.025	---	---	---	---	---	---	---
Spill10011995_C5	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.38	---	---	---	---	---	---	---

TABLE 3-23a
Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Spill10011995_C6	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	3.4	---	---	---	---	---	---	---
Spill10011995_C7	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.071	---	---	---	---	---	---	---
Spill10011995_C8	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.26	---	---	---	---	---	---	---
Spill10011995_C9(2	12/19/95	0	N	---	---	---	---	---	---	---	---	---	---	0.008	---	---	---	---	---	---	---
Spill10011995_C10	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.6	---	---	---	---	---	---	---
Spill10011995_C11	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	2.1	---	---	---	---	---	---	---
Spill10011995_C12	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.083	---	---	---	---	---	---	---
Spill10011995_LatNI	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	2.8	---	---	---	---	---	---	---
Spill10011995_NLat	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.65	---	---	---	---	---	---	---
Spill10011995_Nwal	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.19	---	---	---	---	---	---	---
Spill10011995_SLatl	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.82	---	---	---	---	---	---	---
Spill10011995_Swall	12/12/95	0	N	---	---	---	---	---	---	---	---	---	---	0.12	---	---	---	---	---	---	---
Spill12242005_Sam	03/08/06	0	N	5	3.3	120	0.5	0.5	---	34	3.5	13	**100**	0.16	**16**	8.8	0.54	0.5	5	21	**100**
Spill12242005_Sam	03/08/06	0	N	5	2.9	96	0.5	0.5	---	13	3.3	7.5	**57**	0.16	**2.5**	7.8	0.5	0.5	5	16	42
Spill12242005_Sam	03/08/06	0	N	5	4.5	100	0.5	0.5	---	20	4.6	13	**24**	0.16	**2.5**	13	0.5	0.5	5	30	**65**
Spill12242005_Sam	03/08/06	0	N	10	3.9	160	**1**	1	---	**51**	5	**43**	**170**	0.21	**15**	13	1	1	1	23	**200**
Category 3																					
TC-1	06/14/94	1	N	---	---	---	---	---	---	---	---	---	**10**	---	---	---	---	---	---	---	---
TC-2	06/14/94	3	N	---	---	---	---	---	---	---	---	---	**85**	---	---	---	---	---	---	---	---
TC-4	06/14/94	0	N	---	---	---	---	---	---	---	---	---	**208**	---	---	---	---	---	---	---	---
TC-6	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	**30**	---	---	---	---	---	---	---	---
TC-7	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	2.7	---	---	---	---	---	---	---	---
TC-9	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	8	---	---	---	---	---	---	---	---
TC-12	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	**14**	---	---	---	---	---	---	---	---
TC-13	06/14/94	5	N	---	---	---	---	---	---	---	---	---	**19**	---	---	---	---	---	---	---	---
TC-14	06/14/94	5	N	---	---	---	---	---	---	---	---	---	**41**	---	---	---	---	---	---	---	---
TC-15	06/14/94	4.5	N	---	---	---	---	---	---	---	---	---	**16**	---	---	---	---	---	---	---	---
TC-17	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	**24**	---	---	---	---	---	---	---	---
TC-18	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	**16**	---	---	---	---	---	---	---	---
TC-19	06/14/94	3	N	---	---	---	---	---	---	---	---	---	**52**	---	---	---	---	---	---	---	---
TC-21	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	**9.9**	---	---	---	---	---	---	---	---
TC-22	06/14/94	4.5	N	---	---	---	---	---	---	---	---	---	**27**	---	---	---	---	---	---	---	---
TC-23	06/14/94	5	N	---	---	---	---	---	---	---	---	---	3.5	---	---	---	---	---	---	---	---
TC-24	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	8	---	---	---	---	---	---	---	---
TC-26	06/14/94	2.5	N	---	---	---	---	---	---	---	---	---	**9**	---	---	---	---	---	---	---	---
TG-1	06/13/94	0	N	---	---	---	---	---	---	---	---	---	**20**	---	---	---	---	---	---	---	---
TG-4	06/13/94	0	N	---	---	---	---	---	---	---	---	---	**31**	---	---	---	---	---	---	---	---

TABLE 3-23a

Sample Results: Metals
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
TG-6	06/13/94	2.5	N	---	---	---	---	---	---	---	---	---	**18**	---	---	---	---	---	---	---	---
TG-9	06/13/94	2.5	N	---	---	---	---	---	---	---	---	---	**16**	---	---	---	---	---	---	---	---
TG-11	06/13/94	2	N	---	---	---	---	---	---	---	---	---	**10**	---	---	---	---	---	---	---	---
TG-13	06/13/94	1.5	N	---	---	---	---	---	---	---	---	---	8	---	---	---	---	---	---	---	---
TG-14	06/13/94	2	N	---	---	---	---	---	---	---	---	---	**19**	---	---	---	---	---	---	---	---
TG-15	06/13/94	3	N	---	---	---	---	---	---	---	---	---	8	---	---	---	---	---	---	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

Y debris sample
Ж wood sample
Reporting limits greater than or equal to the Commercial Screening Level.

--- not analyzed
mg/kg milligrams per kilogram
ft bgs feet below ground surface
DTSC California Department of Toxic Substances Control
DTSC-SL DTSC Screening Level
FD field duplicate
N primary sample
ND not detected at the listed reporting limit
NE not established
J concentration or reporting limit estimated by laboratory or data validation
USEPA United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.
3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-23b

Sample Results: Contract Laboratory Program Inorganics
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	1,100,000	NE	820,000	NE	6,900	NE	NE	150
			Background [2]:	16,400	66,500	29,303	12,100	402	4,400	2,070	NE
Location	Date	Depth (ft bgs)	Sample Type	Aluminum	Calcium	Iron	Magnesium	Manganese	Potassium	Sodium	Cyanide
Category 1											
AOC13-10	12/14/15	0 - 0.5	N	3,700	21,000	7,100	3,800	140	880	170	ND (0.206) J
	12/14/15	2 - 3	N	4,200	20,000	8,100	4,100	150	1,100	170	ND (0.217) J
AOC13-22	01/08/16	0 - 0.5	N	9,700	31,000	19,000	8,100	260	1,900 J	970 J	ND (0.0422)
	01/08/16	2 - 3	N	7,000	23,000	15,000	6,200	220	1,600	740	ND (0.0407)
AOC13-34	01/21/17	0 - 0.5	N	2,700	19,000	6,200	3,900	130	710 J	270 J	ND (0.219) J
AOC13-OS2	11/08/11	0 - 0.5	N	7,200	24,000	13,000	5,800	220	1,300	110	ND (1.04)
AOC13-PITOS1	07/26/11	0 - 0.5	N	7,900	15,000	12,000	3,800	160	1,000	93	ND (0.25) J
	07/26/11	0 - 0.5	FD	6,500	14,000	12,000	3,700	140	1,000	89	5 J
AOC13-PITOS2	07/26/11	0 - 0.5	N	11,000	27,000	17,000	7,000	270	1,900	290	ND (0.25)
AOC13-PITOS3	07/26/11	0 - 0.5	N	9,900	32,000	17,000	7,100	270	1,800	280	ND (0.25)
AOC13-PITOS6	07/26/11	0 - 0.5	N	12,000 J	32,000	20,000	7,200	300	2,100 J	290 J	ND (0.25) J
AOC13-PITOS7	07/26/11	0 - 0.5	N	8,300	20,000	14,000	4,900	240	1,400	320	0.73
AOC13-PITOS8	07/26/11	0 - 0.5	N	12,000 J	26,000	19,000	6,100	280	1,800	180	0.38
AOC13-PITOS9	07/26/11	0 - 0.5	N	10,000	22,000	17,000	5,400	260	1,600	ND (10)	1
AOC13-PITOS10	07/26/11	0 - 0.5	N	9,500	28,000	17,000	5,700	250	1,900	110	ND (0.25)
AOC13-PITOS11	07/26/11	0 - 0.5	N	8,100	21,000	14,000	5,200	240	1,300	310	ND (0.25)
AOC13-PITOS12	09/27/11	0 - 0.5	N	8,200 J	33,000	14,000	6,000 J	260	1,300	310	ND (0.25)
AOC13-PITOS13	07/26/11	0 - 0.5	N	6,700	24,000	12,000	4,100	200	1,100 J	91	ND (0.25) J
	07/26/11	0 - 0.5	FD	6,900	25,000	13,000	4,500	220	ND (100) J	84	1.9 J
AOC13-PITOS14	07/26/11	0 - 0.5	N	8,300	29,000	14,000	6,200	240	1,600	430	ND (0.25)
BH-65	03/17/11	14 - 15	N	10,000	17,000	21,000	7,000	350	4,100	650	---
	03/17/11	19 - 20	N	9,300	9,800	23,000	6,400	350	3,300	550	---
BH-67	03/17/11	2 - 3	N	7,200	23,000	15,000	5,400	210	2,200	430	---
	03/17/11	5 - 6	N	1,100	22,000	3,600	2,900	73	400	280	---

TABLE 3-23b

Sample Results: Contract Laboratory Program Inorganics
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
BH-68	03/17/11	2 - 3	N	2,000	6,900	6,700	2,600	70	540	320	---
	03/17/11	5 - 6	N	3,100	20,000	5,000	3,600	130	940	560	---
PS-10	04/13/99	0	N	---	---	9,420	---	179	---	---	---
PS-18	04/13/99	0	N	---	---	17,500	---	311	---	---	---
SD-29	02/04/17	2 - 3	N	3,200	18,000 J	5,600 J	3,400	110	920 J	150 J	ND (0.214) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
Category 1																						
AOC13-1	12/05/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (59)
	12/05/15	0 - 1	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (59)
	12/05/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC13-10	12/14/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (57)
	12/14/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (60)
AOC13-11	01/05/16	0 - 0.5	N	16	13	ND (5.2)	ND (5.2)	ND (5.2)	13	ND (52)	ND (52)	ND (52)	ND (52)	22 J	ND (52)	38 J	ND (5.2)	ND (52)	ND (5.2)	14	34 J	**59**
	01/05/16	0.5 - 1	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3) J	ND (53)	ND (5.3) J	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3) J	ND (59)
	01/05/16	2 - 3	N	19	18	ND (5.2)	13	24	27	ND (52)	ND (52)	310	ND (52)	170	ND (52)	ND (5.2)	ND (5.2)	76	ND (5.2)	ND (5.2)	ND (5.2)	**65**
AOC13-12	12/05/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	12/05/15	0 - 1	FD	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (58)	ND (58)	ND (58)	ND (58)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	ND (5.8)	ND (64)
	12/05/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.9)	ND (5.3)	ND (5.3)	ND (6.1)
AOC13-13	01/09/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND (52)	ND (52)	ND (52)	ND (52)	14	ND (52)	22	ND (5.2)	ND (52)	ND (5.2)	7.3	17	**58**
	01/09/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC13-14	12/14/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (57)
	12/14/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-15	12/14/15	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	16	27	64	12	14	28	ND (5.3)	45	ND (5.3)	13	ND (5.3)	14	41	39
	12/14/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/14/15	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-16	01/05/16	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (5)	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (56)
	01/05/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.6	ND (5.2)	16	ND (5.2)	ND (5.2)	14	ND (5.2)	8.7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.4	7.8
AOC13-17	12/08/15	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (540)	ND (540)	ND (540)	ND (540)	ND (54)	ND (540)	15 J	ND (5.4)	ND (540)	ND (5.4)	ND (5.4)	13 J	**600**
	12/08/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	14	27	57	7.9	17	24	ND (5.4)	29	ND (5.4)	8.2	ND (5)	ND (5.4)	30	38
AOC13-18	01/06/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	9.9	19 J	ND (5.1)	5.5	14 J	ND (5.1)	28 J	ND (5.1)	ND (5.1)	ND (5.1)	13 J	22 J	16
	01/06/16	0.5 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	28	26	46 J	9.9	16	38 J	ND (5.1)	83 J	ND (5.1)	10	ND (5.1)	37 J	58 J	37
	01/06/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC13-19	01/08/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.3	6.6
	01/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-2	12/05/15	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (60)
	12/05/15	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.2)	ND (5.5)	ND (5.5)	ND (6.4)
AOC13-20	01/08/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	13	ND (53)	ND (53)	ND (53)	ND (53)	22	ND (53)	36	ND (5.3)	ND (53)	ND (5.3)	8.8	33	**60**
	01/08/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.5	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.7
AOC13-21	01/08/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	24	ND (51)	74	ND (51)	ND (51)	46	ND (51)	65 J	ND (5.1)	ND (51)	ND (5.1)	26	60 J	**64**
	01/08/16	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	15 J	ND (51)	58	ND (51)	ND (51)	30 J	ND (51)	35 J	ND (5.1)	ND (51)	ND (5.1)	9.5 J	32 J	**61**
	01/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	6.9 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	8.6 J	**59**
AOC13-22	01/08/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	16	ND (53)	ND (53)	ND (53)	ND (53)	24	ND (53)	410	ND (5.3)	ND (53)	ND (5.3)	10	420	**60**
	01/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	63	110	180	ND (51)	100	120	ND (51)	170	ND (5.1)	ND (51)	ND (5.1)	49	150	**160**
AOC13-23	01/08/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.9	ND (54)	ND (54)	ND (54)	ND (54)	12	ND (54)	18	ND (5.4)	ND (54)	ND (5.4)	7.9	18	**60**
	01/08/16	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (55)	ND (55)	ND (55)	ND (55)	6.5	ND (55)	11	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	11	**61**

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
			Commercial Screening Level[1]:	73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
			Background[2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
AOC13-24	01/08/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	14	ND (52)	ND (52)	ND (52)	ND (52)	16	ND (52)	28	ND (5.2)	ND (52)	ND (5.2)	11	29	**59**
	01/08/16	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND (52)	ND (52)	ND (52)	ND (52)	9.4	ND (52)	11	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	11	**58**
	01/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-25	01/09/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.4	ND (53)	ND (53)	ND (53)	ND (53)	7.4	ND (53)	12	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	12	**59**
	01/09/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (55)	ND (55)	ND (55)	ND (55)	ND (55)	ND (55)	ND (55)	9 J	ND (5.2)	ND (55)	ND (5.2)	ND (5.2)	9 J	**64**
AOC13-26	01/09/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.6	ND (53)	ND (53)	ND (53)	ND (53)	9.5	ND (53)	19	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	16	**59**
	01/09/16	2 - 3	N	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (6)	ND (52)	ND (52)	ND (60)
	01/09/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	15 J	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	13 J	**60**
AOC13-27	01/09/16	0 - 0.5	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (55)	ND (55)	ND (55)	ND (55)	ND (5.5)	ND (55)	5.9	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	5.9	**61**
	01/09/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	9.9 J	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	7.4 J	**61**
AOC13-28	01/09/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	27 J	ND (5.2)	ND (52)	ND (5.2)	7.9 J	21 J	**60**
	01/09/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.1	56	ND (53)	70	ND (53)	ND (53)	82	ND (53)	60	ND (5.3)	ND (53)	ND (5.3)	13	64	**69**
AOC13-29	01/09/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/09/16	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/09/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	ND (53)	ND (53)	ND (53)	ND (53)	9.5	ND (53)	12	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	12	**59**
AOC13-3	12/14/15	0 - 0.5	N	18	11	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	5.3	ND (53)	7	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	7.4	**59**
	12/14/15	2 - 3	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (6.5)
AOC13-30	01/07/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.9	78	88	160	23	56	80	ND (5.4)	150	ND (5.4)	25	ND (5.4)	59	130	**120**
	01/07/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC13-31	01/07/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	13	ND (54)	ND (54)	ND (54)	ND (54)	23	ND (54)	34	ND (5.4)	ND (54)	ND (5.4)	12	32	**61**
	01/07/16	0 - 0.5	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9 J	ND (54)	ND (54)	ND (54)	ND (54)	13 J	ND (54)	22 J	ND (5.4)	ND (54)	ND (5.4)	7.5 J	20 J	**61**
	01/07/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	18 J	ND (53)	ND (53)	ND (53)	ND (53)	28 J	ND (53)	35 J	ND (5.3)	ND (53)	ND (5.3)	8.1 J	35 J	**60**
AOC13-32	12/04/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/04/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-33	02/15/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	9.3 J	89 J	64	150	33	33	96 J	ND (5.1)	200 J	ND (5.1) J	27	ND (5.1)	120 J	170 J	**94**
	02/18/17 [Y]	0	N	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	160 J	ND (54)	ND (54)	ND (54)	ND (54)	79 J	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	64 J	**76**
	02/15/17	0 - 0.5	FD	ND (5.1)	5.1	34 J	7.1	67 J	620 J	350 J	800 J	130	210	600 J	ND (5.1)	1,600 J	28 J	120	13	980 J	1,300 J	**510**
	02/15/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.5	62	33 J	69	5.9 J	34 J	57	ND (5.2) J	120 J	ND (5.2)	6.9 J	ND (5.2)	74	93	50
AOC13-33-Asph	04/26/17 [ß]		N	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	37 J	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	31
AOC13-34	01/21/17	0 - 0.5	N	---	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (350)	ND (400)
AOC13-4	12/14/15	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	12/14/15	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	12/14/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-5	01/05/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (60)
	01/05/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC13-6	01/05/16	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (50)	ND (50)	ND (50)	ND (5)	ND (50)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (56)
	01/05/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (57)

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
AOC13-7	12/14/15	0 - 0.5	N	ND (5.4)	ND (5.4)	11 J	ND (5.4)	23 J	120 J	120	220	ND (54)	100	150 J	ND (54)	230 J	9.1 J	ND (54)	ND (5.4)	120 J	180 J	**180**
	12/14/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (58)
AOC13-8	12/05/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	17 J	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	19 J	**60**
	12/05/15	0 - 1	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	10 J	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	11 J	**60**
	12/05/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC13-9	01/09/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	13	ND (52)	ND (52)	ND (52)	ND (52)	19	ND (52)	38	ND (5.2)	ND (52)	ND (5.2)	9.4	27	**59**
	01/09/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.5
AOC13-Asphalt	04/26/17 [ß]		N	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	540 J	430 J	ND (25)	38 J	ND (25)	87 J	ND (25)	49 J	ND (25)	ND (25)	ND (25)	64 J	320 J	**500**
AOC13-Asphalt	04/26/17 [ß]		N	ND (28)	ND (28)	ND (28)	ND (28)	ND (28)	410 J	680 J	ND (28)	55 J	ND (28)	ND (28)	ND (28)	ND (28)	ND (28)	ND (28)	ND (28)	ND (28)	77 J	**740**
AOC13-Debris	04/26/17 [Y]	0	N	ND (5.3)	5.7	40	6.8	150	2,200	2,000 J	2,700 J	940 J	1,000 J	1,700	ND (5.3)	2,600	26	980 J	8.5	890	2,700	**2,600**
AOC13-GrabOS	05/13/08	1	N	---	ND (5.2)	10	ND (5.2)	17	160	120	350	87	90	160	21	590	ND (5.2)	78	ND (5.2)	150	490	**200**
	05/13/08	3	N	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.7	ND (5.1)	ND (5.1)	5.1	ND (5.1)	8.7	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.3	6.4
	05/14/08	5.5	N	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	05/14/08	5.5	FD	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-GrabOS	05/13/08	1	N	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	15	29	48	27	18	31	6	39	ND (5.1)	23	ND (5.1)	9.7	38	44
	05/13/08	3	N	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	05/13/08	4 - 4.5	N	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.4	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	5.3	6.5
AOC13-OS11	06/26/13	0 - 0.5	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (58)
	06/26/13	2 - 3	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (6.7)	ND (50)	ND (50)	ND (58)
	06/26/13	5 - 6	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	50	77	54	ND (50)	54	ND (50)	67	ND (50)	ND (50)	ND (6.5)	ND (50)	71	**88**
AOC13-OS12	06/26/13	0 - 0.5	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	57	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	**61**
	06/26/13	2 - 3	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (8.1)	ND (50)	ND (50)	ND (58)
	06/26/13	2 - 3	FD	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (6.4)	ND (50)	ND (50)	ND (58)
AOC13-OS13	06/26/13	0 - 0.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (59)
	06/26/13	2 - 3	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (6.5)	ND (51)	ND (51)	ND (59)
AOC13-OS14	07/25/13	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	9	ND (5)	ND (5)	ND (5)	ND (5)	5.7	ND (5)	ND (5)	ND (5)	ND (5)	5	6.4
	07/25/13	2 - 3	N	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	5.1 J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	ND (5.1) J	6.1
	07/25/13	2 - 3	FD	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	ND (5.1)	6.2
	07/25/13	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1
AOC13-OS15	04/25/17	3 - 3.1	N	ND (27)	ND (27)	30 J	ND (27)	ND (27)	43 J	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	ND (27)	41 J	34
AOC13-OS16	04/25/17	2.8 - 2.9	N	1,000	1,000	ND (520)	2,000	ND (520)	730 J	ND (520)	ND (520)	ND (520)	ND (520)	ND (520)	ND (520)	ND (520)	ND (520)	ND (520)	ND (520)	29,000	28,000	**650**
AOC13-OS17	04/26/17	3.8 - 3.9	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	18 J	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.8
AOC13-OS18	04/25/17	3.8 - 3.9	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-OS19	04/26/17	4.4 - 4.5	N	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	2,000	**150**

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
		Commercial Screening Level[1]:		73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
AOC13-OS2	11/08/11	0 - 0.5	N	ND (5.2)	6.9	ND (5.2)	ND (5.2)	6.6	67	69	130	33	41	67	10	110	ND (5.2)	33	ND (5.2)	43	95	**100**
	11/08/11	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	ND (5.1)	ND (5.1)	5.8	ND (5.1)	7.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	6.8
	11/08/11	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	ND (5.1)	ND (5.1)	5.5	ND (5.1)	7.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.2	6.7
	11/15/11	2 - 3	FD	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND (22)	---	---	---
	11/08/11	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	15	12	33	7	9.1	18	ND (5.3)	28	ND (5.3)	6.7	ND (5.3)	12	24	20
AOC13-OS3	11/08/11	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC13-OS4	11/08/11	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.9	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.4
	11/08/11	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (5)	7.3	9	ND (5)	30 J	260	320 J	600	72 J	430	310	ND (5)	760	7.3	79	ND (5)	260	580	**420**
	07/26/11	0 - 0.5	FD	ND (5)	ND (5)	7.7	ND (5)	ND (5) J	170	180 J	410	140 J	120 J	220	ND (5)	660	5.4	130	ND (5)	180	530	**250**
	07/26/11	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	15	26	18	9	ND (5) J	ND (5)	19	ND (5)	14	ND (5)	ND (5)	18	23
	07/26/11	9 - 9.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	130	58	ND (51)	ND (51) J	ND (51)	100	ND (51)	ND (51)	ND (10)	ND (51)	88	**69**
AOC13-PITOS2	07/26/11	0 - 0.5	N	7.4	12	ND (5)	ND (5)	12	90	120	260	32	100	120	10	230	ND (5)	35	ND (5)	75	210	**170**
	07/26/11	2 - 3	N	26	30	ND (5)	ND (5)	6.7	7	9.4	18	9.7	7.7	11	ND (5)	15	ND (5)	7.4	6	ND (5)	14	15
	07/26/11	4 - 4.5	N	ND (5.1)	6.4	ND (5.1)	ND (5.1)	7.4	12	20	44	5.4	17	19	ND (5.1)	31	ND (5.1)	5.7	ND (5.1)	7.4	27	29
AOC13-PITOS3	07/26/11	0 - 0.5	N	ND (5)	5	ND (5)	ND (5)	8	28	35	57	27	21	32	5.4	70	ND (5)	22	ND (5)	18	59	51
	07/26/11	2 - 3	N	ND (5.1)	5.4	ND (5.1)	ND (5.1)	6.8	8.8	16	21	9.5	11	13	ND (5.1)	16	ND (5.1)	8.4	ND (5.1)	ND (5.1)	16	22
	07/26/11	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	18	33	11	13	9.4 J	ND (5.1)	22	ND (5.1)	10	ND (5.1)	ND (5.1)	21	26
	07/26/11	6 - 6.5	N	ND (5.2)	5.2	ND (5.2)	ND (5.2)	7	16	27	42	11	21	22	ND (5.2)	33	ND (5.2)	10	ND (5.2)	7.7	31	37
AOC13-PITOS6	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	18	39	13	10	12	ND (5)	21	ND (5)	12	ND (5)	5	19	27
	07/26/11	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	13	14	24	9.4	8.7	ND (5)	ND (5)	17	ND (5)	8.7	ND (5)	ND (5)	16	21
	07/26/11	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	10	10	18	5.9	5.9	ND (5.2)	ND (5.2)	14	ND (5.2)	5.5	ND (5.2)	ND (5.2)	13	16
	07/26/11	7 - 7.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	39	55	110	22	24	35	ND (5.1)	37	ND (5.1)	22	ND (5.1)	8.8	37	**75**
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	44	57	120	24	32	58 J	ND (5)	93	ND (5)	25	ND (5)	23	85	**79**
	07/26/11	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	6	11	6.4	5	ND (5) J	ND (5)	10	ND (5)	5	ND (5)	ND (5)	9.4	11
	07/26/11	2 - 3	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6	11	7	5	ND (5)	ND (5)	13	ND (5)	5.4	ND (5)	ND (5)	13	10
	07/26/11	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/26/11	8 - 8.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	29	32	57	16	20	29	ND (5)	60	ND (5)	16	ND (5)	20	52	45
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	16	22	130	19	27	41	ND (5)	30	ND (5)	20	ND (5)	6.7	28	41
	07/26/11	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	07/26/11	9 - 10	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/26/11	11 - 11.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.3 J	5.3 J	12 J	ND (5)	ND (5)	ND (5) J	ND (5)	8 J	ND (5)	ND (5)	ND (5)	ND (5)	7.3 J	9.9
	07/26/11	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	13	22	8.1	9.5	6.1 J	ND (5.1)	22	ND (5.1)	7.4	ND (5.1)	ND (5.1)	20	20
	07/26/11	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.4	7.1	11	ND (5)	5	ND (5) J	ND (5)	11	ND (5)	ND (5)	ND (5)	ND (5)	10	12
	07/26/11	5 - 6	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.4	6.4	10	6	5.4	ND (5)	ND (5)	11	ND (5)	ND (5)	ND (5)	ND (5)	10	11

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
		Commercial Screening Level[1] :		73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
		Background[2] :		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/26/11	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	19	25	51	13	20	21	ND (5)	41	ND (5)	12	ND (5)	11	37	36
	07/26/11	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10	9.4	17	7.4	7	ND (5) J	ND (5)	22	ND (5)	6.7	ND (5)	ND (5)	19	15
	07/26/11	7 - 7.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.7	ND (5)	11	ND (5)	ND (5)	ND (5)	ND (5)	7.7	ND (5)	ND (5)	ND (5)	ND (5)	7	6.9
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (5)	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.4	ND (5)	ND (5)	6	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.3
	07/26/11	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/26/11	2 - 3	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/26/11	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/26/11	7.5 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.5	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.5	5.9
AOC13-PITOS1	09/27/11	0 - 0.5	N	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	11	14	22	7.8	14	17	ND (5.1)	25	ND (5.1)	7.1	ND (5.1)	13	22	21
	09/27/11	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11	16	20	12	13	17	ND (5.2)	26	ND (5.2)	10	ND (5.2)	8.6	25	23
	09/27/11	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	9.5	5.1	6.5	6.8	ND (5.1)	10	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	10	11
	09/27/11	9 - 9.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.7	11	14	9.4	10	11	ND (5)	15	ND (5)	8	ND (5)	ND (5)	14	17
	09/27/11	11 - 11.5	N	ND (5)	6.4	ND (5)	ND (5)	6.7	30	27	ND (5)	8.4	ND (5)	51	ND (5)	61	ND (5)	6.7	ND (5)	31	53	33
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	5.3	14	ND (5)	5	ND (5)	ND (5)	11	ND (5)	ND (5)	ND (5)	ND (5)	9.7	10
	07/26/11	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	8.4	ND (5)	ND (5)	ND (5)	ND (5)	7.7	ND (5)	ND (5)	ND (5)	ND (5)	6.3	6.4
	07/26/11	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10 J	12 J	20 J	9.7 J	9.7 J	ND (5) J	ND (5)	19 J	ND (5)	8.7 J	ND (5)	5 J	18 J	18
	07/26/11	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	21	26	54	12	21	20	ND (5)	39	ND (5)	11	ND (5)	8.4	35	37
	07/26/11	9 - 9.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	5.7	5.8
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10	13	27	8.7	8.4	ND (5) J	ND (5)	15	ND (5)	7.7	ND (5)	ND (5)	14	20
	07/26/11	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.4	8.5	17	5.1	7.1	ND (5.1) J	ND (5.1)	11	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	14
	07/26/11	4 - 4.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	25	30	56	27	15	22	ND (5.1)	51	ND (5.1)	22	ND (5.1)	7.4	42	43
AOC13-Tar	04/26/17 Ψ	0	N	ND (51) J	ND (51) J	ND (51) J	ND (51) J	ND (51) J	400 J	ND (51) J	ND (51) J	ND (51) J	ND (51) J	1,900 J	ND (51) J	140 J	ND (51) J	ND (51) J	ND (51) J	130 J	910 J	**98**

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
BH-65	03/24/11	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	6.5	ND (5.1)	ND (5.1)	ND (5.1)	5.5	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	5.5	6.2
	03/24/11	2 - 3	N	ND (5.2)	6.3	ND (5.2)	ND (5.2)	ND (5.2)	7.3	11	16	9.8	6.3	8.7	ND (5.2)	14	ND (5.2)	6.3	ND (4.5)	ND (5.2)	13	17
	03/17/11	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	03/17/11	14 - 15	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	03/17/11	19 - 20	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.8)	ND (5.1)	ND (5.1)	ND (5.9)
	03/17/11	29 - 30	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (4.8)	ND (5)	ND (5)	ND (5.8)
	03/17/11	37 - 40	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.3)	ND (5.3)	ND (5.3)	ND (6.1)
	03/17/11	49 - 50	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	03/17/11	59 - 60	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	03/18/11	69 - 70	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	03/18/11	79 - 80	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	03/18/11	79 - 80	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.6)	ND (5.2)	ND (5.2)	ND (6)
	03/18/11	89 - 90	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	03/18/11	99 - 100	N	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.4)	ND (5.2)	ND (5.2)	6
	03/18/11	109 - 110	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5)	ND (5.4)	ND (5.4)	ND (6.2)
	03/18/11	119 - 120	N	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6
	03/19/11	129 - 130	N	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	6
	03/19/11	139 - 140	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.6)	ND (5.4)	ND (5.4)	ND (6.2)
BH-66	03/23/11	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.8)	ND (5.4)	ND (5.4)	ND (6.2)
	03/23/11	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.8)	ND (5.3)	ND (5.3)	ND (6.1)
	03/23/11	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (4.5)	ND (5.6)	ND (5.6)	ND (6.5)
	04/12/11	14 - 15	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	04/12/11	14 - 15	FD	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (6)
	04/12/11	19 - 20	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.5	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.6)	ND (5.1)	5.1	6.3
	04/12/11	29 - 30	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)	ND (5.2)	ND (5.2)	ND (6)
	04/12/11	39 - 40	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.7)	ND (5.2)	ND (5.2)	ND (6)
	04/12/11	49 - 50	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND (6)
	04/13/11	59 - 60	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.3)	ND (5.3)	ND (5.3)	ND (6.1)
	04/13/11	69 - 70	N	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.4)	ND (5.4)	ND (5.4)	ND (6.2)
	04/13/11	79 - 80	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)	ND (5.2)	ND (5.2)	ND (6)
	04/13/11	89 - 90	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.4)	ND (5.3)	ND (5.3)	ND (6.1)
	04/13/11	99 - 100	N	5.3	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6)	ND (5.3)	ND (5.3)	6.1
	04/13/11	109 - 110	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.3)	ND (6.1)
	04/14/11	119 - 120	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.9)	ND (5.2)	ND (5.2)	ND (6)
	04/14/11	119 - 120	FD	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.3)	ND (5.2)	ND (5.2)	ND (6)
	04/14/11	129 - 130	N	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.6)	ND (5.4)	ND (5.4)	ND (6.2)

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
		Commercial Screening Level[1] :		73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
		Background[2] :		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
BH-67	03/17/11	0 - 0.5	N	ND (5.4)	12 J	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.6)	ND (5.4)	ND (5.4)	6.2
	03/17/11	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.1)	ND (5.3)	ND (5.3)	ND (6.1)
	03/17/11	5 - 6	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	04/29/11	9 - 10	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.3)	ND (5.2)	ND (5.2)	ND (6)
	04/29/11	14 - 15	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.5)	ND (5.1)	ND (5.1)	ND (5.9)
	04/29/11	19 - 20	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.4)	ND (5.1)	ND (5.1)	ND (5.9)
	04/29/11	29 - 30	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND (5.9)
	04/29/11	39 - 40	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.7)	ND (5.1)	ND (5.1)	ND (5.9)
	04/29/11	39 - 40	FD	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)	ND (5.1)	ND (5.1)	ND (5.9)
	04/29/11	49 - 50	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	ND (6)
	04/29/11	59 - 60	N	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (4.6)	ND (5.9)	ND (5.9)	ND (6.8)
	04/29/11	69 - 70	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.8)	ND (5.2)	ND (5.2)	ND (6)
	04/29/11	79 - 80	N	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.3)	ND (5.5)	ND (5.5)	ND (6.4)
	04/29/11	89 - 90	N	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (4.5)	ND (5.5)	ND (5.5)	ND (6.4)
	04/29/11	99 - 100	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.4)	ND (5.2)	ND (5.2)	ND (6)
	04/29/11	109 - 110	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6.5)	ND (5.2)	ND (5.2)	ND (6)
	04/29/11	119 - 120	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.7)	ND (5.2)	ND (5.2)	ND (6)
	04/30/11	129 - 130	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.7)	ND (5.2)	ND (5.2)	ND (6)
	04/30/11	139 - 140	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.6)	ND (5.3)	ND (5.3)	ND (6.1)
	04/30/11	139 - 140	FD	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.3)	ND (5.2)	ND (5.2)	ND (6)
	04/30/11	149 - 150	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.4)	ND (5.2)	ND (5.2)	ND (6)
	04/30/11	159 - 160	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	ND (5.2)	ND (6)

TABLE 3-23c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
Commercial Screening Level[1]:				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
BH-68	03/17/11	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
	03/17/11	0 - 0.5	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.6)	ND (5.4)	ND (5.4)	ND (6.2)
	03/17/11	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	03/17/11	5 - 6	N	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (6.7)
	05/13/11	9 - 10	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	14 - 15	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.6)	ND (5.1)	ND (5.1)	ND (5.9)
	05/13/11	19 - 20	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	29 - 30	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	39 - 40	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	49 - 50	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.8)	ND (5.2)	ND (5.2)	ND (6)
	05/13/11	59 - 60	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.1)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	69 - 70	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.8)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	79 - 80	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.8)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	89 - 90	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.5)	ND (5.3)	ND (5.3)	ND (6.1)
	05/13/11	99 - 100	N	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.4)	ND (5.5)	ND (5.5)	ND (6.4)
	05/13/11	99 - 100	FD	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.4)	ND (5.4)	ND (5.4)	ND (6.2)
	05/13/11	109 - 110	N	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.7)	ND (5.2)	ND (5.2)	ND (6)
	05/13/11	119 - 120	N	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.2)	ND (5.4)	ND (5.4)	ND (6.2)
	05/13/11	129 - 130	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.6)	ND (5.3)	ND (5.3)	ND (6.1)
	05/14/11	139 - 140	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.3)	ND (6.1)
	05/14/11	149 - 150	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.9)	ND (5.3)	ND (5.3)	ND (6.1)
	05/14/11	159 - 160	N	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.4)	ND (5.3)	ND (5.3)	ND (6.1)
PA-02	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.1	ND (51)	ND (51)	ND (51)	ND (51)	19	ND (51)	21	ND (5.1)	ND (51)	ND (5.1)	6.4	22	**57**
PA-22	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.6	ND (5.2)	ND (5.2)	5.5	ND (5.2)	7.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	6.6
PA-OS3	12/10/14	0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.9	13	26	ND (5.1)	7.9	15	ND (5.1)	24	ND (5.1)	ND (5.1)	ND (5.1)	6.5	22	19
	12/10/14	3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
PGE-LT-OS5	03/08/07	0.5	N	---	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	03/08/07	3	N	---	---	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
PGE-LT-OS6	03/08/07	0.5	N	---	---	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
	03/08/07	3	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
PGE-LT-OS7	03/08/07	0.5	N	---	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	03/08/07	3	N	---	---	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
PGE-LT-OS8	03/08/07	0.5	N	---	---	ND (5.2)	ND (5.2)	7.7	71	210	580	160	130	360	46	65	ND (5.2)	140	ND (5.2)	ND (5.2)	81	**340**
	03/08/07	3	N	---	---	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	7.1	ND (5.5)	9.1	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	9.4	6.4
PGE-LT-OS9	03/08/07	0.5	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	03/08/07	3	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
PGE-UTOS1	03/08/07	0.5	N	---	---	ND (5.5)	ND (5.5)	ND (5.5)	14	28	43	35	14	29	ND (5.5)	45	ND (5.5)	24	ND (5.5)	13	42	39
	03/08/07	3	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)

TABLE 3-23c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
PGE-UTOS2	03/08/07	0.5	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	19	44	58	45	22	33	ND (5.2)	53	ND (5.2)	35	ND (5.2)	9.1	53	**58**
	03/08/07	3	N	---	---	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
PGE-UTOS3	03/08/07	0.5	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	03/08/07	3	N	---	---	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
PGE-UTOS4	03/08/07	0.5	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	40	60	88	56	ND (5.2)	46	ND (5.2)	110	ND (5.2)	45	ND (5.2)	31	98	**80**
	03/08/07	3	N	---	---	ND (5.3)	ND (5.3)	ND (5.3)	7.2	ND (5.3)	ND (5.3)	14	ND (5.3)	8.9	ND (5.3)	16	ND (5.3)	13	ND (5.3)	ND (5.3)	14	7.6
SD-24	03/09/16	0 - 1	N	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	120 J	260 J	670 J	99 J	240 J	270 J	ND (26)	290 J	ND (26)	83 J	ND (26)	68 J	280 J	**360**
	03/09/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
SD-28	02/05/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.3 J	7.7	16	6	ND (5.3)	8.1	ND (5.3)	13	ND (5.3)	ND (5.3)	ND (5.3)	6.7	12	13
	02/05/17	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	9.2 J	13 J	24 J	5.9 J	11 J	11	ND (5.5)	12	ND (5.5)	5.5 J	ND (5.5)	ND (5.5)	13	20
	02/05/17	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9 J	6.1	16	ND (5.4)	ND (5.4)	11	ND (5.4)	14	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	12	12
	02/05/17	9 - 10	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.5
SD-29	02/04/17	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	10 J	ND (5.4)	ND (5.4)	5.7	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7
	02/04/17	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
	02/05/17	4.5 - 5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	02/05/17	7.5 - 8	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
SD-31	02/15/17	0 - 0.5	N	6.9	ND (5.1)	30	70	210	1,300 J	1,400 J	2,800 J	1,800 J	930 J	1,400 J	ND (5.1)	2,300 J	23	1,500 J	ND (5.1)	840 J	2,500 J	**2,000**
	02/15/17	0 - 0.5	FD	9.3	6.2	34	76	230	1,700 J	1,600 J	3,600 J	1,700 J	670 J	1,800 J	ND (5.2)	3,000 J	27	1,500 J	6.2	1,000 J	3,100 J	**2,300**
	02/15/17	1 - 2	N	14	16	ND (5.2)	ND (5.2)	14	130	140	280	100	80	140	ND (5.2)	230	ND (5.2)	90	ND (5.2)	96	220	**190**
	02/15/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.3	33	48 J	94	15 J	38 J	35	ND (5.2)	46	ND (5.2)	15 J	ND (5.2)	17	50	**65**
SD-07	12/17/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.2
	12/17/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (51)	ND (51)	ND (51)	ND (51)	9.9	ND (51)	15	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	14	**57**
	12/18/15	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/18/15	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/18/15	9 - 10	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
SD-OS30	07/18/17	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	34	67	150	87	38 J	65	ND (5)	64	ND (5)	71	ND (5)	13	67	**95**
	07/18/17	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.8	16	32	13	9	13	ND (5.4)	15	ND (5.4)	12	ND (5.4)	ND (5.4)	15	24
	07/18/17	4 - 5	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	10	16	28	8.2	15	17	ND (5.6)	23	ND (5.6)	7.5	ND (5.6)	6.3	22	24
	07/18/17	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	11	20 J	43 J	9.4 J	20 J	20	ND (5.4)	20	ND (5.4)	9 J	ND (5.4)	ND (5.4)	21	29
	07/18/17	7 - 8	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	8.1	14	28	8.5	12	15	ND (5.5)	16	ND (5.5)	7.8	ND (5.5)	ND (5.5)	16	21
SD-OS34	12/02/16	0 - 0.5	N	ND (5.3)	ND (5.3)	17	ND (5.3)	35	520 J	480 J	960	78 J	310 J	600	ND (5.3)	1,100	10	94 J	ND (5.3)	420 J	980	**640**
	12/02/16	0.5 - 1	N	120	120	ND (11)	11	33	410	910 J	1,700 J	260 J	810 J	850	ND (11)	790	ND (11)	260 J	19	140	810	**1,200**
	12/02/16	1 - 1.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/03/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	25	44	66	21	32	41	ND (5.2)	53	ND (5.2)	22	ND (5.2)	10	53	**58**
	12/03/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	16	28 J	54 J	13	18	28 J	ND (5.1)	38 J	ND (5.1)	14	ND (5.1)	8.5	38 J	39
	12/03/16	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	35	55 J	110 J	22	32	56 J	ND (5.1)	74 J	ND (5.1)	24	ND (5.1)	18	72 J	**75**

TABLE 3-23c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level [1] :				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background [2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
SD-OS34A	12/02/16	0 - 0.5	N	13	14	ND (5)	ND (5)	ND (5)	100	150	260	64	110	160	ND (5)	230	ND (5)	69	ND (5)	58	230	**200**
	12/02/16	1 - 1.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	38	51	76	30	28	51	ND (5.3)	76	ND (5.3)	29	ND (5.3)	23	73	**68**
	12/02/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	18	33	16	11	21	ND (5.1)	30	ND (5.1)	15	ND (5.1)	7.5	29	27
	12/02/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.2
SD-OS35	12/04/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	34	53	92	18	47	57	ND (5.2)	77	ND (5.2)	20	ND (5.2)	15	76	**71**
	12/04/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/05/16	4.5 - 5.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
SD-OS35A	12/05/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	26	40	66	25	30	48	ND (5.1)	63	ND (5.1)	24	ND (5.1)	15	63	54
	12/05/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	7.9	14	5.1	6.5	9.3	ND (5.1)	15	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	13
	12/05/16	4.5 - 5.5	N	ND (5.1)	ND (5.1)	7.2 J	ND (5.1)	16 J	340 J	460 J	700 J	120 J	270 J	560 J	ND (5.1)	930 J	ND (5.1)	130 J	5.8 J	250 J	910 J	**580**
SD-OS36	12/01/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	8.1 J	54 J	54 J	120 J	17 J	40 J	59 J	ND (5.3)	100 J	ND (5.3)	13 J	ND (5.3)	25 J	95 J	**76**
	12/01/16	2.5 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	12/01/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
SD-OS38	12/13/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	20	35 J	64	16 J	36 J	39	ND (5.1)	43	ND (5.1)	14 J	ND (5.1)	8.8	44	48
	12/13/16	3 - 4	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.8 J	15 J	ND (5.3)	8.2 J	7.1	ND (5.3)	7.5	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	8.2	13
SD-OS39	11/29/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	26	37	82	14	30	41	ND (5.1)	51	ND (5.1)	14	ND (5.1)	14	49	52
	11/29/16	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	24	35	90	11	27	41	ND (5)	48	ND (5)	12	ND (5)	11	45	50
	11/29/16	2.5 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.3
	11/29/16	2.5 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
SD-OS40	12/06/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1
	12/06/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.1	13	ND (5.3)	5.3	7.4	ND (5.3)	8.8	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.5	12
	12/06/16	5 - 5.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.6	11	5.2	ND (5.2)	6.6	ND (5.2)	8.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.3	11
	12/09/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	7.8	ND (5.3)	ND (5.3)	5.7	ND (5.3)	6.8	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.1	9.3
	12/09/16	6 - 7	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	67 J	88	220	61	84	110	ND (5.7)	85 J	ND (5.7)	45 J	ND (5.7)	21 J	85 J	**120**
	12/09/16	7 - 8	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/11/16	7 - 8	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	17	28	68	18	21	34	ND (5.3)	21	ND (5.3)	17	ND (5.3)	ND (5.3)	24	41
	12/09/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
SD-OS41	12/13/16	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	12 J	30 J	ND (5)	9.4 J	15	ND (5)	19	ND (5)	ND (5)	ND (5)	6	20	19
	12/13/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/14/16	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	12	19 J	42 J	12 J	17 J	20	ND (5.6)	29	ND (5.6)	ND (5.6)	ND (5.6)	8.6	29	28
	12/14/16	8 - 8.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	13 J	ND (5.4)	5.7 J	6.5	ND (5.4)	9.3	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9.7	7.3
SD-OS42	07/17/17	0 - 0.5	N	ND (5.1) J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	28 J	28 J	110 J	21 J	42 J	60 J	ND (5.1) J	77 J	ND (5.1)	21 J	ND (5.1)	24 J	65 J	47
	07/17/17	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	15	26	66	13	28	31 J	ND (5.2)	22 J	ND (5.2)	13	ND (5.2)	ND (5.2) J	23 J	38
	07/17/17	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	07/17/17	3 - 4	N	1,100	1,600	150	100	370	1,400	1,500	1,900	1,200	720	1,500	ND (60)	1,700	ND (60)	640	190 J	1,500	5,300	**1,900**
	07/17/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
SD-OS43	07/18/17	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	13	17 J	54	8 J	18 J	22	ND (5)	35	ND (5)	8 J	ND (5)	14	30	27
	07/18/17	2 - 3	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5.8)
	07/18/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.3

TABLE 3-23c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
SD-OS44	07/19/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	07/19/17	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	07/19/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
TD-3	11/12/15	0	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	61	99	170	88	59	100	ND (55)	86	ND (5.5)	73	ND (5.5)	24	88	**160**
TD-4	11/12/15	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	56	77	160	ND (53)	ND (53)	140	ND (53)	60	ND (5.3)	ND (53)	17	19	64	**130**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

ß	black sandy material
Y	debris sample
ψ	tar sample
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-23d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
Category 1												
AOC13-1	12/05/15	0 - 1	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	12/05/15	0 - 1	FD	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	12/05/15	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (7.8)	ND (7.8)	ND (78)	ND (7.8)	ND (7.8)	---
AOC13-10	12/14/15	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	12/14/15	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5.6)	ND (5.6)	2,200 J	ND (5.6)	ND (5.6)	ND (5.6)
AOC13-11	01/05/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/05/16	0.5 - 1	FD	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/05/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	---
AOC13-12	12/05/15	0 - 1	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	12/05/15	0 - 1	FD	ND (380)	ND (380)	ND (380)	---	---	---	---	---	---
	12/05/15	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (4.9)	ND (4.9)	ND (49)	ND (4.9)	ND (4.9)	---
AOC13-13	01/09/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (6.6)	ND (6.6)	ND (66) J	ND (6.6)	ND (6.6)	---
AOC13-14	12/14/15	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	12/14/15	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (6.1)	ND (6.1)	ND (61)	ND (6.1)	ND (6.1)	---
AOC13-15	12/14/15	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	12/14/15	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
	12/14/15	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	---
AOC13-16	01/05/16	0 - 1	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/05/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
AOC13-17	12/08/15	0 - 0.5	N	ND (3,500)	ND (3,500)	ND (350)	---	---	---	---	---	---
	12/08/15	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
AOC13-18	01/06/16	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	01/06/16	0.5 - 1	FD	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	01/06/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
AOC13-19	01/08/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/08/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.9)	ND (5.9)	ND (59) J	ND (5.9)	ND (5.9)	---
AOC13-2	12/05/15	0 - 1	N	ND (3,500)	ND (3,500)	ND (350)	---	---	---	---	---	---
	12/05/15	2 - 3	N	ND (360)	ND (360)	ND (360)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
AOC13-20	01/08/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/08/16	2 - 3	N	ND (360)	ND (360)	ND (360)	ND (7)	ND (7)	ND (70) J	ND (7)	ND (7)	---
AOC13-21	01/08/16	0 - 0.5	N	ND (3,400)	ND (3,400)	ND (340)	---	---	---	---	---	---
	01/08/16	0 - 0.5	FD	ND (3,400)	ND (3,400)	ND (340)	---	---	---	---	---	---
	01/08/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (6.3)	ND (6.3)	ND (63) J	ND (6.3)	ND (6.3)	---
AOC13-22	01/08/16	0 - 0.5	N	ND (3,500)	ND (3,500)	ND (350)	---	---	---	---	---	---
	01/08/16	2 - 3	N	ND (3,400)	ND (3,400)	ND (340)	ND (5.8)	ND (5.8)	ND (58) J	ND (5.8)	ND (5.8)	ND (5.8)
AOC13-23	01/08/16	0 - 0.5	N	ND (360)	ND (360)	ND (360)	---	---	---	---	---	---
	01/08/16	2 - 3	N	ND (3,600)	ND (3,600)	ND (360)	ND (6.1)	ND (6.1)	ND (61) J	ND (6.1)	ND (6.1)	---
AOC13-24	01/08/16	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	01/08/16	0 - 0.5	FD	ND (3,500)	ND (3,500)	ND (350)	---	---	---	---	---	---
	01/08/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (6.3)	ND (6.3)	ND (63) J	ND (6.3)	ND (6.3)	---
AOC13-25	01/09/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (6.4)	ND (6.4)	ND (64) J	ND (6.4)	ND (6.4)	---
AOC13-26	01/09/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (3,500)	ND (3,500)	ND (350)	ND (6)	ND (6)	ND (60) J	ND (6)	ND (6)	---
	01/09/16	2 - 3	FD	ND (3,500)	ND (3,500)	ND (350)	ND (6.5)	ND (6.5)	ND (65) J	ND (6.5)	ND (6.5)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	**160,000**	**1,200,000**	**82,000,000**	**1,800,000**	**9,900,000**	**670,000,000**	**1,400**	**9,900,000**	**130,000,000**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
AOC13-27	01/09/16	0 - 0.5	N	ND (360)	ND (360)	ND (360)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (6.5)	ND (6.5)	ND (65) J	12	ND (6.5)	---
AOC13-28	01/09/16	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (6.9)	ND (6.9)	ND (69) J	ND (6.9)	ND (6.9)	---
AOC13-29	01/09/16	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	01/09/16	0 - 0.5	FD	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (6.2)	ND (6.2)	ND (62) J	ND (6.2)	ND (6.2)	---
AOC13-3	12/14/15	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	12/14/15	2 - 3	N	ND (370)	ND (370)	ND (370)	ND (6.2)	ND (6.2)	ND (62)	ND (6.2)	ND (6.2)	---
AOC13-30	01/07/16	0 - 0.5	N	ND (360)	ND (360)	ND (360)	---	---	---	---	---	---
	01/07/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (6.4)	ND (6.4)	ND (64) J	ND (6.4)	ND (6.4)	---
AOC13-31	01/07/16	0 - 0.5	N	ND (360)	ND (360)	ND (360)	---	---	---	---	---	---
	01/07/16	0 - 0.5	FD	ND (360)	ND (360)	ND (360)	---	---	---	---	---	---
	01/07/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5.9)	ND (5.9)	ND (59) J	ND (5.9)	ND (5.9)	---
AOC13-32	12/04/15	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	12/04/15	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	---
AOC13-33-Asphalt	04/26/17 ß		N	ND (1,800)	ND (1,800)	ND (1,800)	---	---	---	---	---	---
AOC13-34	01/21/17	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
AOC13-4	12/14/15	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	12/14/15	0 - 0.5	FD	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	12/14/15	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	---
AOC13-5	01/05/16	0 - 0.5	N	ND (360)	ND (360)	ND (360)	---	---	---	---	---	---
	01/05/16	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	---
AOC13-6	01/05/16	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	01/05/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.9)	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	bis (2-ethylhexyl) phthalate	Butylbenzylphthalate	Di-n-butyl phthalate	1,2,4-Trimethylbenzene	4-Isopropyltoluene	Acetone	Chloroform	Isopropylbenzene	Methyl acetate
AOC13-7	12/14/15	0 - 0.5	N	ND (3,600)	ND (3,600)	ND (360)	---	---	---	---	---	---
	12/14/15	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	---
AOC13-8	12/05/15	0 - 1	N	ND (3,400)	ND (3,400)	ND (3,400)	---	---	---	---	---	---
	12/05/15	0 - 1	FD	ND (3,400)	ND (3,400)	ND (3,400)	---	---	---	---	---	---
	12/05/15	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
AOC13-9	01/09/16	0 - 0.5	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
	01/09/16	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (6)	ND (6)	ND (60) J	ND (6)	ND (6)	---
AOC13-Asphalt1	04/26/17 ß		N	ND (1,700)	ND (1,700)	ND (1,700)	---	---	---	---	---	---
AOC13-Asphalt2	04/26/17 ß		N	ND (1,800)	ND (1,800)	ND (1,800)	---	---	---	---	---	---
AOC13-GrabOS1	05/13/08	1	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	05/13/08	3	N	ND (340)	ND (340)	ND (340)	ND (5.5)	ND (5.5)	ND (55)	5.8	ND (5.5)	---
	05/14/08	5.5	N	ND (340)	ND (340)	ND (340)	ND (5.5)	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	---
	05/14/08	5.5	FD	ND (340)	ND (340)	ND (340)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
AOC13-GrabOS2	05/13/08	1	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	05/13/08	3	N	ND (340)	ND (340)	ND (340)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
	05/13/08	4 - 4.5	N	ND (340)	ND (340)	ND (340)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
AOC13-OS11	06/26/13	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	06/26/13	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (6.7)	ND (6.7)	ND (67)	ND (6.7)	ND (6.7)	---
	06/26/13	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (6.5)	ND (6.5)	ND (65)	ND (6.5)	ND (6.5)	---
AOC13-OS12	06/26/13	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	06/26/13	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (8.1)	ND (8.1)	ND (81)	ND (8.1)	ND (8.1)	---
	06/26/13	2 - 3	FD	ND (330)	ND (330)	ND (330)	ND (6.4)	ND (6.4)	ND (64)	ND (6.4)	ND (6.4)	---
AOC13-OS13	06/26/13	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	06/26/13	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (6.5)	ND (6.5)	ND (65)	ND (6.5)	ND (6.5)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	bis (2-ethylhexyl) phthalate	Butylbenzylphthalate	Di-n-butyl phthalate	1,2,4-Trimethylbenzene	4-Isopropyltoluene	Acetone	Chloroform	Isopropylbenzene	Methyl acetate
AOC13-OS14	07/25/13	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/25/13	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (7.9)	ND (7.9)	ND (79)	ND (7.9)	ND (7.9)	---
	07/25/13	2 - 3	FD	ND (340)	ND (340)	ND (340)	ND (7.8)	ND (7.8)	ND (78)	ND (7.8)	ND (7.8)	---
	07/25/13	5 - 6	N	ND (340)	ND (340)	ND (340)	ND (8.9)	ND (8.9)	ND (89)	ND (8.9)	ND (8.9)	---
AOC13-OS2	11/08/11	0 - 0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	11/08/11	2 - 3	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	11/15/11	2 - 3	N	---	---	---	ND (10)	ND (10)	ND (100)	ND (10)	ND (10)	460 J
	11/15/11	2 - 3	FD	---	---	---	ND (22)	ND (22)	ND (220)	ND (22)	ND (22)	1,800 J
	11/08/11	2 - 3	FD	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	11/15/11	5 - 6	N	---	---	---	ND (13)	ND (13)	ND (130)	ND (13)	ND (13)	---
	11/08/11	5 - 6	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
AOC13-OS3	11/08/11	2 - 3	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	11/15/11	2 - 3	N	---	---	---	ND (14)	ND (14)	ND (140)	ND (14)	ND (14)	---
AOC13-OS4	11/08/11	2 - 3	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	11/15/11	2 - 3	N	---	---	---	ND (12)	ND (12)	ND (120)	ND (12)	ND (12)	---
	11/15/11	5 - 6	N	---	---	---	ND (15)	ND (15)	ND (150)	ND (15)	ND (15)	---
	11/08/11	5 - 6	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	0 - 0.5	FD	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (8.7)	ND (8.7)	ND (87) J	ND (8.7)	ND (8.7)	ND (9)
	07/26/11	9 - 9.5	N	ND (340)	ND (340)	ND (340)	ND (10)	ND (10)	ND (100)	ND (10)	ND (10)	ND (9.6)
AOC13-PITOS2	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (9.9)	ND (9.9)	ND (99)	ND (9.9)	ND (9.9)	ND (10)
	07/26/11	4 - 4.5	N	ND (330)	ND (330)	ND (330)	ND (9.1)	ND (9.1)	ND (91)	ND (9.1)	ND (9.1)	ND (9.5)

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
		Commercial Screening Level [1]:		160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	bis (2-ethylhexyl) phthalate	Butylbenzylphthalate	Di-n-butyl phthalate	1,2,4-Trimethylbenzene	4-Isopropyltoluene	Acetone	Chloroform	Isopropylbenzene	Methyl acetate
AOC13-PITOS3	07/26/11	0 - 0.5	N	360	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (9.3)	ND (9.3)	ND (93)	ND (9.3)	ND (9.3)	ND (8.9)
	07/26/11	2 - 3	FD	ND (330)	ND (330)	ND (330)	ND (9.1)	ND (9.1)	ND (91)	ND (9.1)	ND (9.1)	ND (9.3)
	07/26/11	6 - 6.5	N	ND (340)	ND (340)	ND (340)	ND (11)	ND (11)	ND (110)	ND (11)	ND (11)	ND (12)
AOC13-PITOS6	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (7.8)	ND (7.8)	ND (78)	ND (7.8)	ND (7.8)	ND (8.6)
	07/26/11	5 - 6	N	ND (340)	ND (340)	ND (340)	ND (9.5)	ND (9.5)	ND (95)	ND (9.5)	ND (9.5)	---
	07/26/11	7 - 7.5	N	ND (340)	ND (340)	ND (340)	ND (8.5)	ND (8.5)	ND (85)	ND (8.5)	ND (8.5)	---
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (8.4)	ND (8.4)	ND (84)	ND (8.4)	ND (8.4)	ND (8.3)
	07/26/11	2 - 3	FD	ND (330)	ND (330)	ND (330)	ND (8.7)	ND (8.7)	ND (87)	ND (8.7)	ND (8.7)	ND (8.6)
	07/26/11	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (8)	ND (8)	ND (80)	ND (8)	ND (8)	ND (8.3)
	07/26/11	8 - 8.5	N	ND (330)	ND (330)	ND (330)	ND (7.8)	ND (7.8)	ND (78)	ND (7.8)	ND (7.8)	ND (7.6)
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	5 - 6	N	ND (340)	ND (340)	ND (340)	ND (10)	ND (10)	ND (100)	ND (10)	ND (10)	---
	07/26/11	9 - 10	N	ND (330)	ND (330)	ND (330)	ND (8.7)	ND (8.7)	ND (87)	ND (8.7)	ND (8.7)	---
	07/26/11	11 - 11.5	N	ND (330)	ND (330)	ND (330)	ND (8)	ND (8)	ND (80)	ND (8)	ND (8)	---
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (9.3)	ND (9.3)	ND (93)	ND (9.3)	ND (9.3)	ND (8.6)
	07/26/11	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (10)	ND (10)	ND (100)	ND (10)	ND (10)	ND (9.7)
	07/26/11	5 - 6	FD	ND (330)	ND (330)	ND (330)	ND (9)	ND (9)	ND (90)	ND (9)	ND (9)	ND (9.6)
AOC13-PITOS10	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (9.6)	ND (9.6)	ND (96)	ND (9.6)	ND (9.6)	ND (9.2)
	07/26/11	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (8.3)	ND (8.3)	ND (83)	ND (8.3)	ND (8.3)	25
	07/26/11	7 - 7.5	N	ND (330)	ND (330)	ND (330)	ND (7.3)	ND (7.3)	ND (73) J	ND (7.3)	ND (7.3)	ND (7.8)

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
AOC13-PITOS11	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (9.2)	ND (9.2)	140 J	ND (9.2)	ND (9.2)	ND (10)
	07/26/11	2 - 3	FD	ND (330)	ND (330)	ND (330)	ND (9.4)	ND (9.4)	140	ND (9.4)	ND (9.4)	ND (9.4)
	07/26/11	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (9)	ND (9)	ND (90)	ND (9)	ND (9)	ND (8.5)
	07/26/11	7.5 - 8	N	ND (340)	ND (340)	ND (340)	ND (8.8)	ND (8.8)	ND (88)	ND (8.8)	ND (8.8)	ND (9)
AOC13-PITOS12	09/27/11	0 - 0.5	N	ND (340) J	ND (340) J	ND (340) J	---	---	---	---	---	---
	09/27/11	2 - 3	N	ND (340)	ND (340)	ND (340)	ND (11)	ND (11)	ND (110)	ND (11)	ND (11)	ND (11)
	09/27/11	5 - 6	N	ND (340)	ND (340)	ND (340)	ND (11)	ND (11)	ND (110)	ND (11)	ND (11)	ND (11)
	09/27/11	9 - 9.5	N	ND (330)	ND (330)	ND (330)	ND (8.6)	ND (8.6)	ND (86)	ND (8.6)	ND (8.6)	ND (8.6)
	09/27/11	11 - 11.5	N	1,200	ND (330)	ND (330)	ND (9.5)	ND (9.5)	ND (95)	ND (9.5)	ND (9.5)	18
AOC13-PITOS13	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	0 - 0.5	FD	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (12)	ND (12)	ND (120)	ND (12)	ND (12)	ND (11)
	07/26/11	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (9.4)	ND (9.4)	ND (94)	ND (9.4)	ND (9.4)	ND (8.4)
	07/26/11	9 - 9.5	N	ND (330)	ND (330)	ND (330)	ND (8.5)	ND (8.5)	ND (85)	ND (8.5)	ND (8.5)	ND (8.2)
AOC13-PITOS14	07/26/11	0 - 0.5	N	ND (330)	ND (330)	ND (330)	---	---	---	---	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (330)	ND (9.1)	ND (9.1)	ND (91)	ND (9.1)	ND (9.1)	ND (9.4)
	07/26/11	4 - 4.5	N	ND (330)	ND (330)	ND (330)	ND (8)	ND (8)	ND (80)	ND (8)	ND (8)	ND (8.4)
AOC13-Tar	04/26/17 Ψ	0	N	ND (3,300) J	ND (3,300) J	ND (3,300) J	---	---	---	---	---	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	bis (2-ethylhexyl) phthalate	Butylbenzylphthalate	Di-n-butyl phthalate	1,2,4-Trimethylbenzene	4-Isopropyltoluene	Acetone	Chloroform	Isopropylbenzene	Methyl acetate
BH-65	03/24/11	0 - 0.5	N	ND (340)	ND (340)	ND (340)	ND (4.5)	ND (4.5)	ND (45)	ND (4.5)	ND (4.5)	---
	03/24/11	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (4.5)	ND (4.5)	ND (45)	ND (4.5)	ND (4.5)	---
	03/17/11	9 - 10	N	ND (340)	ND (340)	ND (340)	ND (6.9)	ND (6.9)	ND (69)	ND (6.9)	ND (6.9)	---
	03/17/11	14 - 15	N	ND (340)	ND (340)	ND (340)	ND (5.9)	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	ND (6.3)
	03/17/11	19 - 20	N	ND (340)	ND (340)	ND (340)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	ND (4.8)
	03/17/11	29 - 30	N	ND (330)	ND (330)	ND (330)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
	03/17/11	37 - 40	N	ND (350)	ND (350)	ND (350)	ND (4.3)	ND (4.3)	ND (43)	ND (4.3)	ND (4.3)	---
	03/17/11	49 - 50	N	ND (350)	ND (350)	ND (350)	ND (6)	ND (6)	ND (60)	ND (6)	ND (6)	---
	03/17/11	59 - 60	N	ND (340)	ND (340)	ND (340)	ND (6.2)	ND (6.2)	ND (62)	ND (6.2)	ND (6.2)	---
	03/18/11	69 - 70	N	ND (350)	ND (350)	ND (350)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
	03/18/11	79 - 80	N	ND (350)	ND (350)	ND (350)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	---
	03/18/11	79 - 80	FD	ND (350)	ND (350)	ND (350)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	ND (4.6)	---
	03/18/11	89 - 90	N	ND (350)	ND (350)	ND (350)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
	03/18/11	99 - 100	N	ND (350)	ND (350)	ND (350)	ND (4.4)	ND (4.4)	ND (44)	ND (4.4)	ND (4.4)	---
	03/18/11	109 - 110	N	ND (360)	ND (360)	ND (360)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	---
	03/18/11	119 - 120	N	ND (340)	ND (340)	ND (340)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
	03/19/11	129 - 130	N	ND (340)	ND (340)	ND (340)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	---
	03/19/11	139 - 140	N	ND (360)	ND (360)	ND (360)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	ND (4.6)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
BH-66	03/23/11	0 - 0.5	N	ND (350)	ND (350)	ND (350)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
	03/23/11	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
	03/23/11	5 - 6	N	ND (370)	ND (370)	ND (370)	ND (4.5)	ND (4.5)	ND (45)	ND (4.5)	ND (4.5)	---
	04/12/11	14 - 15	N	ND (340)	ND (340)	ND (340)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
	04/12/11	14 - 15	FD	ND (340)	ND (340)	ND (340)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	---
	04/12/11	19 - 20	N	ND (340)	ND (340)	ND (340)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
	04/12/11	29 - 30	N	ND (340)	ND (340)	ND (340)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	---
	04/12/11	39 - 40	N	ND (340)	ND (340)	ND (340)	ND (4.7)	ND (4.7)	ND (47)	ND (4.7)	ND (4.7)	---
	04/12/11	49 - 50	N	ND (340)	ND (340)	ND (340)	ND (4.5)	ND (4.5)	ND (45)	ND (4.5)	ND (4.5)	---
	04/13/11	59 - 60	N	ND (350)	ND (350)	ND (350)	ND (4.3)	ND (4.3)	ND (43)	ND (4.3)	ND (4.3)	---
	04/13/11	69 - 70	N	ND (350)	ND (350)	ND (350)	ND (4.4)	ND (4.4)	ND (44)	ND (4.4)	ND (4.4)	---
	04/13/11	79 - 80	N	ND (350)	ND (350)	ND (350)	ND (6)	ND (6)	ND (60)	ND (6)	ND (6)	---
	04/13/11	89 - 90	N	ND (350)	ND (350)	ND (350)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
	04/13/11	99 - 100	N	ND (350)	ND (350)	ND (350)	ND (6)	ND (6)	ND (60)	ND (6)	ND (6)	---
	04/13/11	109 - 110	N	ND (350)	ND (350)	ND (350)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
	04/14/11	119 - 120	N	ND (340)	ND (340)	ND (340)	ND (4.9)	ND (4.9)	ND (49)	ND (4.9)	ND (4.9)	---
	04/14/11	119 - 120	FD	ND (350)	ND (350)	ND (350)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	---
	04/14/11	129 - 130	N	ND (350)	ND (350)	ND (350)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	ND (4.6)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
BH-67	03/17/11	0 - 0.5	N	ND (360)	ND (360)	ND (360)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	ND (4.6)	---
	03/17/11	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (4.9)
	03/17/11	5 - 6	N	ND (330)	ND (330)	ND (330)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	ND (5.5)
	04/29/11	9 - 10	N	ND (340)	ND (340)	ND (340)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	---
	04/29/11	14 - 15	N	ND (340)	ND (340)	ND (340)	ND (5.5)	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	---
	04/29/11	19 - 20	N	ND (340)	ND (340)	ND (340)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
	04/29/11	29 - 30	N	ND (340)	ND (340)	ND (340)	ND (4.9)	ND (4.9)	ND (49)	ND (4.9)	ND (4.9)	---
	04/29/11	39 - 40	N	ND (330)	ND (330)	ND (330)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	---
	04/29/11	39 - 40	FD	ND (330)	ND (330)	ND (330)	ND (5.9)	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	---
	04/29/11	49 - 50	N	ND (350)	ND (350)	ND (350)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	---
	04/29/11	59 - 60	N	ND (390)	ND (390)	ND (390)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	6.3	---
	04/29/11	69 - 70	N	ND (340)	ND (340)	ND (340)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	---
	04/29/11	79 - 80	N	ND (360)	ND (360)	ND (360)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	---
	04/29/11	89 - 90	N	ND (360)	ND (360)	ND (360)	ND (4.5)	ND (4.5)	ND (45)	ND (4.5)	ND (4.5)	---
	04/29/11	99 - 100	N	ND (340)	ND (340)	ND (340)	ND (4.4)	ND (4.4)	ND (44)	ND (4.4)	ND (4.4)	---
	04/29/11	109 - 110	N	ND (340)	ND (340)	ND (340)	ND (6.5)	ND (6.5)	ND (65)	ND (6.5)	ND (6.5)	---
	04/29/11	119 - 120	N	ND (340)	ND (340)	ND (340)	ND (4.7)	ND (4.7)	ND (47)	ND (4.7)	ND (4.7)	---
	04/30/11	129 - 130	N	ND (340)	ND (340)	ND (340)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	---
	04/30/11	139 - 140	N	ND (350)	ND (350)	ND (350)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	ND (4.6)	---
	04/30/11	139 - 140	FD	ND (350)	ND (350)	ND (350)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	---
	04/30/11	149 - 150	N	ND (340)	ND (340)	ND (340)	ND (4.4)	ND (4.4)	ND (44)	ND (4.4)	ND (4.4)	---
	04/30/11	159 - 160	N	ND (340)	ND (340)	ND (340)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	bis (2-ethylhexyl) phthalate	Butylbenzylphthalate	Di-n-butyl phthalate	1,2,4-Trimethylbenzene	4-Isopropyltoluene	Acetone	Chloroform	Isopropylbenzene	Methyl acetate
BH-68	03/17/11	0 - 0.5	N	ND (360)	ND (360)	ND (360)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
	03/17/11	0 - 0.5	FD	ND (360)	ND (360)	ND (360)	ND (4.6)	ND (4.6)	ND (46)	ND (4.6)	ND (4.6)	---
	03/17/11	2 - 3	N	ND (350)	ND (350)	ND (350)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	ND (5.8)
	03/17/11	5 - 6	N	ND (380)	ND (380)	ND (380)	ND (5.9)	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	ND (5.8)
	05/13/11	9 - 10	N	ND (350)	ND (350)	ND (350)	ND (6.1)	ND (6.1)	ND (61)	ND (6.1)	ND (6.1)	---
	05/13/11	14 - 15	N	ND (340)	ND (340)	ND (340)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
	05/13/11	19 - 20	N	ND (350)	ND (350)	ND (350)	ND (5)	ND (5)	ND (50)	ND (5)	ND (5)	---
	05/13/11	29 - 30	N	ND (350)	ND (350)	ND (350)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
	05/13/11	39 - 40	N	ND (350)	ND (350)	ND (350)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
	05/13/11	49 - 50	N	ND (340)	ND (340)	ND (340)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
	05/13/11	59 - 60	N	ND (350)	ND (350)	ND (350)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	---
	05/13/11	69 - 70	N	ND (350)	ND (350)	ND (350)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
	05/13/11	79 - 80	N	ND (350)	ND (350)	ND (350)	ND (4.8)	ND (4.8)	ND (48)	ND (4.8)	ND (4.8)	---
	05/13/11	89 - 90	N	ND (350)	ND (350)	ND (350)	ND (5.5)	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	---
	05/13/11	99 - 100	N	ND (360)	ND (360)	ND (360)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
	05/13/11	99 - 100	FD	ND (350)	ND (350)	ND (350)	ND (4.4)	ND (4.4)	ND (44)	ND (4.4)	ND (4.4)	---
	05/13/11	109 - 110	N	ND (350)	ND (350)	ND (350)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	---
	05/13/11	119 - 120	N	ND (350)	ND (350)	ND (350)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
	05/13/11	129 - 130	N	ND (350)	ND (350)	ND (350)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	---
	05/14/11	139 - 140	N	ND (350)	ND (350)	ND (350)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	---
	05/14/11	149 - 150	N	ND (350)	ND (350)	ND (350)	ND (4.9)	ND (4.9)	ND (49)	ND (4.9)	ND (4.9)	---
	05/14/11	159 - 160	N	ND (350)	ND (350)	ND (350)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	---
PA-02	11/09/15	0 - 1	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
PA-22	01/27/16	0 - 1	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
PA-OS3	12/10/14	0.5	N	ND (340)	ND (340)	ND (340)	---	---	---	---	---	---
	12/10/14	3	N	ND (350)	ND (350)	ND (350)	---	---	---	---	---	---

TABLE 3-23d
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)								
			Commercial Screening Level [1]:	160,000	1,200,000	82,000,000	1,800,000	9,900,000	670,000,000	1,400	9,900,000	130,000,000
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Butylbenzylphthalate**	**Di-n-butyl phthalate**	**1,2,4-Trimethylbenzene**	**4-Isopropyltoluene**	**Acetone**	**Chloroform**	**Isopropylbenzene**	**Methyl acetate**
PGE-LT-OS5	03/08/07	0.5	N	---	---	---	ND (5.1) J	---	ND (51) J	ND (5.1) J	ND (5.1) J	---
	03/08/07	3	N	---	---	---	ND (5.3) J	---	ND (53) J	ND (5.3) J	ND (5.3) J	---
PGE-LT-OS6	03/08/07	0.5	N	---	---	---	ND (5.4) J	---	ND (54) J	ND (5.4) J	ND (5.4) J	---
	03/08/07	3	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
PGE-LT-OS7	03/08/07	0.5	N	---	---	---	ND (5.1) J	---	ND (51) J	ND (5.1) J	ND (5.1) J	---
	03/08/07	3	N	---	---	---	ND (5.1) J	---	ND (51) J	ND (5.1) J	ND (5.1) J	---
PGE-LT-OS8	03/08/07	0.5	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
	03/08/07	3	N	---	---	---	ND (5.5) J	---	ND (55) J	ND (5.5) J	ND (5.5) J	---
PGE-LT-OS9	03/08/07	0.5	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
	03/08/07	3	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
PGE-UTOS1	03/08/07	0.5	N	---	---	---	ND (5.5) J	---	ND (55) J	ND (5.5) J	ND (5.5) J	---
	03/08/07	3	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
PGE-UTOS2	03/08/07	0.5	N	---	---	---	ND (5.2) J	---	650 J	ND (5.2) J	ND (5.2) J	---
	03/08/07	3	N	---	---	---	ND (5.4) J	---	ND (54) J	ND (5.4) J	ND (5.4) J	---
PGE-UTOS3	03/08/07	0.5	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
	03/08/07	3	N	---	---	---	ND (5.3) J	---	ND (53) J	ND (5.3) J	ND (5.3) J	---
PGE-UTOS4	03/08/07	0.5	N	---	---	---	ND (5.2) J	---	ND (52) J	ND (5.2) J	ND (5.2) J	---
	03/08/07	3	N	---	---	---	ND (5.3) J	---	ND (53) J	ND (5.3) J	ND (5.3) J	---
SD-29	02/04/17	2 - 3	N	ND (360)	ND (360)	ND (360)	ND (6.6)	ND (6.6)	ND (66) J	ND (6.6)	ND (6.6)	ND (6.7) J
SD-OS42	07/17/17	3 - 4	N	ND (3,900)	4,000	5,000	43 J	75 J	1,000	ND (18)	25 J	97
	07/17/17	5 - 6	N	ND (340)	ND (340)	ND (340)	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (7.8)
Category 2												
Spill03012004_Sam	05/21/04	0	N	---	---	---	---	---	---	---	---	---
Spill03012004_Sam	05/21/04	0	N	---	---	---	---	---	---	---	---	---

TABLE 3-23d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level or RWQCB ESL are circled.

Only detected SVOCs and VOCs are presented.

ß	black sandy material
Ψ	tar sample
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency
SVOCs	semivolatile organic compounds
VOCs	volatile organic compounds

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for SVOCs and VOCs.

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
RWQCB Environmental Screening Level [2]:				NE	NE	NE	NE	NE	NE	740	230	11,000
Background [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
Category 1												
AOC13-1	12/05/15	0 - 1	N	---	---	---	---	---	---	---	12 J	52 J
	12/05/15	0 - 1	FD	---	---	---	---	---	---	---	120 J	230 J
	12/05/15	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
AOC13-10	12/14/15	0 - 0.5	N	---	---	---	---	---	---	---	82	490
	12/14/15	2 - 3	N	---	---	---	---	---	---	ND (1.2)	39	310
AOC13-11	01/05/16	0 - 0.5	N	---	---	---	---	---	---	---	15	140
	01/05/16	0.5 - 1	FD	---	---	---	---	---	---	---	12	85
	01/05/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (10)	ND (10)
AOC13-12	12/05/15	0 - 1	N	---	---	---	---	---	---	---	18	160
	12/05/15	0 - 1	FD	---	---	---	---	---	---	---	13	140
	12/05/15	2 - 3	N	---	---	---	---	---	---	ND (1)	ND (11)	19
AOC13-13	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	31	190
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	ND (10)	12
AOC13-14	12/14/15	0 - 0.5	N	---	---	---	---	---	---	---	58	320
	12/14/15	2 - 3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	15
AOC13-15	12/14/15	0 - 0.5	N	---	---	---	---	---	---	---	13	77
	12/14/15	2 - 3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	13
	12/14/15	5 - 6	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
AOC13-16	01/05/16	0 - 1	N	---	---	---	---	---	---	---	ND (11)	22
	01/05/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	ND (10)	ND (10)
AOC13-17	12/08/15	0 - 0.5	N	---	---	---	---	---	---	---	16	160
	12/08/15	2 - 3	N	---	---	---	---	---	---	ND (0.98)	19	110
AOC13-18	01/06/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	24
	01/06/16	0.5 - 1	FD	---	---	---	---	---	---	---	ND (10)	24
	01/06/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (10)	ND (10)
AOC13-19	01/08/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	12
	01/08/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (10)	ND (10)

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
RWQCB Environmental Screening Level [2]:				NE	NE	NE	NE	NE	NE	740	230	11,000
Background [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
AOC13-2	12/05/15	0 - 1	N	---	---	---	---	---	---	---	58	220
	12/05/15	2 - 3	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
AOC13-20	01/08/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	77
	01/08/16	2 - 3	N	---	---	---	---	---	---	ND (1.4)	ND (11)	30
AOC13-21	01/08/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	81
	01/08/16	0 - 0.5	FD	---	---	---	---	---	---	---	ND (10)	80
	01/08/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (10)	60
AOC13-22	01/08/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	48
	01/08/16	2 - 3	N	---	---	---	---	---	---	ND (1.1)	23	190
AOC13-23	01/08/16	0 - 0.5	N	---	---	---	---	---	---	---	27	94
	01/08/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	32	120
AOC13-24	01/08/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	65
	01/08/16	0 - 0.5	FD	---	---	---	---	---	---	---	ND (10)	83
	01/08/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	10	68
AOC13-25	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	53
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	36	420
AOC13-26	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	120
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	25	310 J
	01/09/16	2 - 3	FD	---	---	---	---	---	---	ND (1.2)	44	550 J
AOC13-27	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	28
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	75	770
AOC13-28	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	47
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.4)	ND (11)	17
AOC13-29	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	13
	01/09/16	0 - 0.5	FD	---	---	---	---	---	---	---	ND (10)	ND (10)
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (11)	34
AOC13-3	12/14/15	0 - 0.5	N	---	---	---	---	---	---	---	16	77
	12/14/15	2 - 3	N	---	---	---	---	---	---	ND (1.4)	ND (11)	ND (11)

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
AOC13-30	01/07/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	21
	01/07/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	ND (11)	44
AOC13-31	01/07/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	71
	01/07/16	0 - 0.5	FD	---	---	---	---	---	---	---	ND (11)	51
	01/07/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	14	72
AOC13-32	12/04/15	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	ND (10)
	12/04/15	2 - 3	N	---	---	---	---	---	---	ND (1)	22	260
AOC13-4	12/14/15	0 - 0.5	N	---	---	---	---	---	---	---	11	58
	12/14/15	0 - 0.5	FD	---	---	---	---	---	---	---	ND (10)	45
	12/14/15	2 - 3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
AOC13-5	01/05/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (11)	240
	01/05/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	ND (11)	ND (11)
AOC13-6	01/05/16	0 - 0.5	N	---	---	---	---	---	---	---	31	200
	01/05/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (10)	14
AOC13-7	12/14/15	0 - 0.5	N	---	---	---	---	---	---	---	150	680
	12/14/15	2 - 3	N	---	---	---	---	---	---	ND (1.2)	20	90
AOC13-8	12/05/15	0 - 1	N	---	---	---	---	---	---	---	120	430
	12/05/15	0 - 1	FD	---	---	---	---	---	---	---	93	320
	12/05/15	2 - 3	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
AOC13-9	01/09/16	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	52
	01/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	33	130
AOC13-GrabOS1	05/13/08	1	N	---	---	---	---	---	---	---	120	310
	05/13/08	3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	17
	05/14/08	5.5	N	---	---	---	---	---	---	ND (1.1)	ND (10)	14
	05/14/08	5.5	FD	---	---	---	---	---	---	ND (1.1)	ND (10)	16
AOC13-GrabOS2	05/13/08	1	N	---	---	---	---	---	---	---	51	140
	05/13/08	3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	17
	05/13/08	4 - 4.5	N	---	---	---	---	---	---	ND (0.92)	23	51

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**3,900**	**1,100**	**140,000**
RWQCB Environmental Screening Level [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**740**	**230**	**11,000**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
AOC13-OS11	06/26/13	0 - 0.5	N	---	---	---	---	11	88	---	---	---
	06/26/13	2 - 3	N	---	---	---	---	ND (10)	68	---	---	---
	06/26/13	5 - 6	N	---	---	---	---	ND (10)	17	---	---	---
AOC13-OS12	06/26/13	0 - 0.5	N	---	---	---	---	12	70	---	---	---
	06/26/13	2 - 3	N	---	---	---	---	ND (10)	40	---	---	---
	06/26/13	2 - 3	FD	---	---	---	---	ND (10)	47	---	---	---
AOC13-OS13	06/26/13	0 - 0.5	N	---	---	---	---	16	52	---	---	---
	06/26/13	2 - 3	N	---	---	---	---	62	79	---	---	---
AOC13-OS14	07/25/13	0 - 0.5	N	---	---	---	---	ND (10)	12 J	---	---	---
	07/25/13	2 - 3	N	---	---	---	---	ND (10)	ND (10)	---	---	---
	07/25/13	2 - 3	FD	---	---	---	---	ND (10)	ND (10)	---	---	---
	07/25/13	5 - 6	N	---	---	---	---	ND (10)	ND (10)	---	---	---
AOC13-OS15	04/25/17	3 - 3.1	N	---	---	---	---	---	---	ND (1.3) J	6,900	21,000
AOC13-OS16	04/25/17	2.8 - 2.9	N	---	---	---	---	---	---	ND (1.2) J	7,100	21,000
AOC13-OS17	04/26/17	3.8 - 3.9	N	---	---	---	---	---	---	ND (1.1)	900	1,100
AOC13-OS18	04/25/17	3.8 - 3.9	N	---	---	---	---	---	---	ND (1.1)	300	420
AOC13-OS19	04/26/17	4.4 - 4.5	N	---	---	---	---	---	---	ND (1.2) J	3,500	11,000
AOC13-OS2	11/08/11	0 - 0.5	N	---	---	---	---	---	---	---	16	87
	11/08/11	2 - 3	N	---	---	---	---	---	---	---	23	160
	11/15/11	2 - 3	N	---	---	---	---	---	---	ND (2.5)	---	---
	11/08/11	2 - 3	FD	---	---	---	---	---	---	---	31	180
	11/15/11	2 - 3	FD	---	---	---	---	---	---	ND (2.7)	---	---
	11/15/11	5 - 6	N	---	---	---	---	---	---	ND (2.9)	---	---
	11/08/11	5 - 6	N	---	---	---	---	---	---	---	23	130
AOC13-OS3	11/08/11	2 - 3	N	---	---	---	---	---	---	---	ND (10)	ND (10)
	11/15/11	2 - 3	N	---	---	---	---	---	---	ND (2.7)	---	---

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
AOC13-OS4	11/08/11	2 - 3	N	---	---	---	---	---	---	---	11	40
	11/15/11	2 - 3	N	---	---	---	---	---	---	ND (2.4)	---	---
	11/08/11	5 - 6	N	---	---	---	---	---	---	---	11	50
	11/15/11	5 - 6	N	---	---	---	---	---	---	ND (3.4)	---	---
AOC13-PITOS1	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	16	35
	07/26/11	0 - 0.5	FD	---	---	---	---	---	---	---	14	68
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.8)	ND (10)	15
	07/26/11	9 - 9.5	N	---	---	---	---	---	---	ND (2)	56	190
AOC13-PITOS2	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	20	57
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.9)	12	48
	07/26/11	4 - 4.5	N	---	---	---	---	---	---	ND (1.7)	12	23
AOC13-PITOS3	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	12	23
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.7)	14	55 J
	07/26/11	2 - 3	FD	---	---	---	---	---	---	ND (1.8)	14	96 J
	07/26/11	6 - 6.5	N	---	---	---	---	---	---	ND (2.1)	15	59
AOC13-PITOS6	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	11	41
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.8)	11	33
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (2)	ND (10)	37
	07/26/11	7 - 7.5	N	---	---	---	---	---	---	ND (1.8)	44	160
AOC13-PITOS7	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	12	51
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.7)	ND (10)	21
	07/26/11	2 - 3	FD	---	---	---	---	---	---	ND (1.7)	10	22
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (1.8)	ND (10)	ND (10)
	07/26/11	8 - 8.5	N	---	---	---	---	---	---	ND (1.6)	43	120
AOC13-PITOS8	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	11	31
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (1.6)	ND (10)	17
	07/26/11	9 - 10	N	---	---	---	---	---	---	ND (1.6)	ND (10)	ND (10)
	07/26/11	11 - 11.5	N	---	---	---	---	---	---	ND (2)	42	93

TABLE 3-23e
Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
AOC13-PITOS9	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	32
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.8)	ND (10)	33
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (2)	ND (10)	38
	07/26/11	5 - 6	FD	---	---	---	---	---	---	ND (1.9)	ND (10)	38
AOC13-PITOS10	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	ND (10)
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.8)	23	100
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (1.6)	ND (10)	11
	07/26/11	7 - 7.5	N	---	---	---	---	---	---	ND (1.4)	ND (10)	26
AOC13-PITOS11	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	150	110
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.7)	ND (10)	ND (10)
	07/26/11	2 - 3	FD	---	---	---	---	---	---	ND (1.8)	ND (10)	ND (10)
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (1.8)	ND (10)	ND (10)
	07/26/11	7.5 - 8	N	---	---	---	---	---	---	ND (1.9)	36	55
AOC13-PITOS12	09/27/11	0 - 0.5	N	---	---	---	---	---	---	---	18	81
	09/27/11	2 - 3	N	---	---	---	---	---	---	ND (2)	ND (10)	32
	09/27/11	5 - 6	N	---	---	---	---	---	---	ND (2)	ND (10)	23
	09/27/11	9 - 9.5	N	---	---	---	---	---	---	ND (1.9)	ND (10)	25
	09/27/11	11 - 11.5	N	---	---	---	---	---	---	ND (1.7)	160	710
AOC13-PITOS13	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	54
	07/26/11	0 - 0.5	FD	---	---	---	---	---	---	---	ND (10)	30
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (2.4)	11	66
	07/26/11	5 - 6	N	---	---	---	---	---	---	ND (1.9)	26	170
	07/26/11	9 - 9.5	N	---	---	---	---	---	---	ND (1.7)	11	57
AOC13-PITOS14	07/26/11	0 - 0.5	N	---	---	---	---	---	---	---	ND (10)	24
	07/26/11	2 - 3	N	---	---	---	---	---	---	ND (1.9)	12	45
	07/26/11	4 - 4.5	N	---	---	---	---	---	---	ND (1.8)	ND (10)	34

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**3,900**	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**740**	**230**	**11,000**
			Background [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
BH-65	03/24/11	0 - 0.5	N	---	---	---	---	---	---	ND (0.89)	22	64
	03/24/11	2 - 3	N	---	---	---	---	---	---	ND (0.89)	32	83
	03/17/11	9 - 10	N	---	---	---	---	---	---	ND (1.3)	ND (10)	ND (10)
	03/17/11	14 - 15	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	03/17/11	19 - 20	N	---	---	---	---	---	---	ND (1.2)	ND (10)	ND (10)
	03/17/11	29 - 30	N	---	---	---	---	---	---	ND (0.95)	ND (10)	ND (10)
	03/17/11	37 - 40	N	---	---	---	---	---	---	ND (1.3)	ND (11)	ND (11)
	03/17/11	49 - 50	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	03/17/11	59 - 60	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	03/18/11	69 - 70	N	---	---	---	---	---	---	ND (0.92)	ND (11)	ND (11)
	03/18/11	79 - 80	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
	03/18/11	79 - 80	FD	---	---	---	---	---	---	ND (0.99)	ND (10)	ND (10)
	03/18/11	89 - 90	N	---	---	---	---	---	---	ND (0.9)	ND (11)	ND (11)
	03/18/11	99 - 100	N	---	---	---	---	---	---	ND (0.92)	ND (10)	ND (10)
	03/18/11	109 - 110	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	03/18/11	119 - 120	N	---	---	---	---	---	---	ND (0.91)	ND (10)	ND (10)
	03/19/11	129 - 130	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	03/19/11	139 - 140	N	---	---	---	---	---	---	ND (0.91)	ND (11)	ND (11)

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**3,900**	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**740**	**230**	**11,000**
			Background [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
BH-66	03/23/11	0 - 0.5	N	---	---	---	---	---	---	ND (0.95)	ND (11)	ND (11)
	03/23/11	2 - 3	N	---	---	---	---	---	---	ND (0.92)	ND (11)	28
	03/23/11	5 - 6	N	---	---	---	---	---	---	ND (0.85)	ND (11)	ND (11)
	04/12/11	14 - 15	N	---	---	---	---	---	---	ND (1)	30	53
	04/12/11	14 - 15	FD	---	---	---	---	---	---	ND (1.1)	29	53
	04/12/11	19 - 20	N	---	---	---	---	---	---	ND (1.3)	40	92
	04/12/11	29 - 30	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	04/12/11	39 - 40	N	---	---	---	---	---	---	ND (0.85)	ND (10)	ND (10)
	04/12/11	49 - 50	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	04/13/11	59 - 60	N	---	---	---	---	---	---	ND (0.99)	ND (11)	ND (11)
	04/13/11	69 - 70	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	04/13/11	79 - 80	N	---	---	---	---	---	---	ND (0.98)	ND (10)	ND (10)
	04/13/11	89 - 90	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	04/13/11	99 - 100	N	---	---	---	---	---	---	ND (0.99)	ND (11)	ND (11)
	04/13/11	109 - 110	N	---	---	---	---	---	---	ND (0.98)	ND (10)	ND (10)
	04/14/11	119 - 120	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	04/14/11	119 - 120	FD	---	---	---	---	---	---	ND (0.93)	ND (10)	ND (10)
	04/14/11	129 - 130	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**3,900**	**1,100**	**140,000**
RWQCB Environmental Screening Level [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**740**	**230**	**11,000**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
BH-67	03/17/11	0 - 0.5	N	---	---	---	---	---	---	ND (1)	12	22
	03/17/11	2 - 3	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	03/17/11	5 - 6	N	---	---	---	---	---	---	ND (1.2)	ND (10)	ND (10)
	04/29/11	9 - 10	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	04/29/11	14 - 15	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	04/29/11	19 - 20	N	---	---	---	---	---	---	ND (1.4)	ND (10)	15
	04/29/11	29 - 30	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	04/29/11	39 - 40	N	---	---	---	---	---	---	ND (1.3)	ND (10)	ND (10)
	04/29/11	39 - 40	FD	---	---	---	---	---	---	ND (1.3)	ND (10)	ND (10)
	04/29/11	49 - 50	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	04/29/11	59 - 60	N	---	---	---	---	---	---	ND (1.1)	ND (12)	ND (12)
	04/29/11	69 - 70	N	---	---	---	---	---	---	ND (1.2)	ND (10)	ND (10)
	04/29/11	79 - 80	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	04/29/11	89 - 90	N	---	---	---	---	---	---	ND (0.99)	ND (11)	ND (11)
	04/29/11	99 - 100	N	---	---	---	---	---	---	ND (0.98)	ND (10)	ND (10)
	04/29/11	109 - 110	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	04/29/11	119 - 120	N	---	---	---	---	---	---	ND (0.92)	ND (10)	ND (10)
	04/30/11	129 - 130	N	---	---	---	---	---	---	ND (0.99)	ND (10)	ND (10)
	04/30/11	139 - 140	N	---	---	---	---	---	---	ND (0.9)	ND (11)	ND (11)
	04/30/11	139 - 140	FD	---	---	---	---	---	---	ND (0.98)	ND (10)	ND (10)
	04/30/11	149 - 150	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	04/30/11	159 - 160	N	---	---	---	---	---	---	ND (0.97)	ND (10)	ND (10)

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
RWQCB Environmental Screening Level [2]:				NE	NE	NE	NE	NE	NE	740	230	11,000
Background [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
BH-68	03/17/11	0 - 0.5	N	---	---	---	---	---	---	ND (1)	ND (11)	12
	03/17/11	0 - 0.5	FD	---	---	---	---	---	---	ND (0.96)	ND (11)	ND (11)
	03/17/11	2 - 3	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	03/17/11	5 - 6	N	---	---	---	---	---	---	ND (1.1)	ND (12)	ND (12)
	05/13/11	9 - 10	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
	05/13/11	14 - 15	N	---	---	---	---	---	---	ND (1.3)	ND (10)	ND (10)
	05/13/11	19 - 20	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	05/13/11	29 - 30	N	---	---	---	---	---	---	ND (0.94)	ND (11)	ND (11)
	05/13/11	39 - 40	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
	05/13/11	49 - 50	N	---	---	---	---	---	---	ND (0.96)	ND (10)	ND (10)
	05/13/11	59 - 60	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	05/13/11	69 - 70	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
	05/13/11	79 - 80	N	---	---	---	---	---	---	ND (0.94)	ND (11)	ND (11)
	05/13/11	89 - 90	N	---	---	---	---	---	---	ND (0.9)	ND (11)	ND (11)
	05/13/11	99 - 100	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	05/13/11	99 - 100	FD	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	05/13/11	109 - 110	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	05/13/11	119 - 120	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	05/13/11	129 - 130	N	---	---	---	---	---	---	ND (0.91)	ND (11)	ND (11)
	05/14/11	139 - 140	N	---	---	---	---	---	---	ND (1)	ND (11)	ND (11)
	05/14/11	149 - 150	N	---	---	---	---	---	---	ND (0.97)	ND (11)	ND (11)
	05/14/11	159 - 160	N	---	---	---	---	---	---	ND (0.93)	ND (10)	ND (10)
PA-02	11/09/15	0 - 1	N	---	---	---	---	---	---	---	33	220
PA-22	01/27/16	0 - 1	N	---	---	---	---	---	---	---	ND (10)	16
PA-OS3	12/10/14	0.5	N	---	---	---	---	---	---	ND (0.99)	ND (10)	16
	12/10/14	3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
PGE-LT-OS5	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	03/08/07	3	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons

AOC 13 – Unpaved Areas within the Compressor Station

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
PGE-LT-OS6	03/08/07	0.5	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
	03/08/07	3	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
PGE-LT-OS7	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	03/08/07	3	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
PGE-LT-OS8	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	18	240
	03/08/07	3	N	---	---	---	---	---	---	ND (1.1)	ND (11)	36
PGE-LT-OS9	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
	03/08/07	3	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
PGE-UTOS1	03/08/07	0.5	N	---	---	---	---	---	---	ND (1.1)	13	70
	03/08/07	3	N	---	---	---	---	---	---	ND (1)	ND (10)	ND (10)
PGE-UTOS2	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	19	53
	03/08/07	3	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
PGE-UTOS3	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	32	26
	03/08/07	3	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
PGE-UTOS4	03/08/07	0.5	N	---	---	---	---	---	---	ND (1)	ND (10)	38
	03/08/07	3	N	---	---	---	---	---	---	ND (1.1)	ND (11)	ND (11)
SD-24	03/09/16	0 - 1	N	---	---	---	---	---	---	---	37	290
	03/09/16	2 - 3	N	---	---	---	---	---	---	ND (1.4)	ND (11)	28
SD-28	02/05/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.3)	ND (10)	11
	02/05/17	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (11)	22
	02/05/17	5 - 6	N	---	---	---	---	---	---	ND (1.2)	ND (11)	14
	02/05/17	9 - 10	N	---	---	---	---	---	---	ND (1.3)	12	21
SD-29	02/04/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.5)	48	210
	02/04/17	2 - 3	N	---	---	---	---	---	---	ND (1.3) J	ND (11)	ND (11)
	02/05/17	4.5 - 5	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
	02/05/17	7.5 - 8	N	---	---	---	---	---	---	ND (1.3)	ND (10)	ND (10)

TABLE 3-23e
Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
SD-31	02/15/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.1)	85	250
	02/15/17	0 - 0.5	FD	---	---	---	---	---	---	ND (1.1)	85	240
	02/15/17	1 - 2	N	---	---	---	---	---	---	ND (2.4)	30	150
	02/15/17	2 - 3	N	---	---	---	---	---	---	ND (1.2)	44	220
SD-07	12/17/15	0 - 1	N	---	---	---	---	---	---	---	ND (10)	ND (10)
	12/17/15	2 - 3	N	---	---	---	---	---	---	ND (1.1)	ND (10)	65
	12/18/15	5 - 6	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	12/18/15	9 - 10	N	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
	12/18/15	9 - 10	FD	---	---	---	---	---	---	ND (1.1)	ND (10)	ND (10)
SD-OS30	07/18/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.2)	ND (21)	90
	07/18/17	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (18)	28
	07/18/17	4 - 5	N	---	---	---	---	---	---	ND (1.4)	ND (19)	43
	07/18/17	5 - 6	N	---	---	---	---	---	---	ND (1.4)	ND (18)	31
	07/18/17	7 - 8	N	---	---	---	---	---	---	ND (1.5)	ND (16)	19
SD-OS34	12/02/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.2) J	57	500
	12/02/16	0.5 - 1	N	---	---	---	---	---	---	ND (2.3)	86	530
	12/02/16	1 - 1.5	N	---	---	---	---	---	---	ND (1.4)	20	150
	12/03/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	12	37
	12/03/16	5 - 6	N	---	---	---	---	---	---	ND (1.2)	11	14 J
	12/03/16	5 - 6	FD	---	---	---	---	---	---	ND (1.5)	17	120 J
SD-OS34A	12/02/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.3)	27	150
	12/02/16	1 - 1.5	N	---	---	---	---	---	---	ND (1.5)	22	130
	12/02/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	13	51
	12/02/16	5 - 6	N	---	---	---	---	---	---	ND (1.3)	ND (10)	12
SD-OS35	12/04/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.3)	22	150
	12/04/16	2 - 3	N	---	---	---	---	---	---	ND (1.3)	11	18
	12/05/16	4.5 - 5.5	N	---	---	---	---	---	---	ND (1.5)	ND (10)	26

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
RWQCB Environmental Screening Level [2]:				NE	NE	NE	NE	NE	NE	740	230	11,000
Background [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
SD-OS35A	12/05/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.1)	12	37
	12/05/16	2 - 3	N	---	---	---	---	---	---	ND (1.2)	14	94
	12/05/16	4.5 - 5.5	N	---	---	---	---	---	---	ND (1.3)	39	320 J
SD-OS36	12/01/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.5)	49	330
	12/01/16	2.5 - 3	N	---	---	---	---	---	---	ND (1.3)	32	100
	12/01/16	5 - 6	N	---	---	---	---	---	---	ND (1.2)	10	40
SD-OS38	12/13/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.2)	24	94
	12/13/16	3 - 4	N	---	---	---	---	---	---	ND (1.4)	27	87
SD-OS39	11/29/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.3)	35	170
	11/29/16	0 - 0.5	FD	---	---	---	---	---	---	ND (1.2)	38	170
	11/29/16	2.5 - 3	N	---	---	---	---	---	---	ND (1.2)	11	19
	11/29/16	2.5 - 3	FD	---	---	---	---	---	---	ND (1.1)	ND (10)	14
SD-OS40	12/06/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.2)	10	20
	12/06/16	2 - 3	N	---	---	---	---	---	---	ND (1.5)	20	79
	12/09/16	5 - 6	N	---	---	---	---	---	---	ND (1.4)	21	57
	12/06/16	5 - 5.5	N	---	---	---	---	---	---	ND (1.3)	16	52
	12/09/16	6 - 7	N	---	---	---	---	---	---	ND (1.2)	17	150
	12/11/16	7 - 8	N	---	---	---	---	---	---	ND (1.2)	11	26
	12/09/16	7 - 8	N	---	---	---	---	---	---	ND (1.5)	14	55
	12/09/16	9 - 10	N	---	---	---	---	---	---	ND (1.5)	13	24
SD-OS41	12/13/16	0 - 0.5	N	---	---	---	---	---	---	ND (1.3)	140	300
	12/13/16	2 - 3	N	---	---	---	---	---	---	ND (1.4)	77	150
	12/14/16	5 - 6	N	---	---	---	---	---	---	ND (1.5)	240	590
	12/14/16	8 - 8.5	N	---	---	---	---	---	---	ND (1.7)	35	120
SD-OS42	07/17/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.2)	ND (23)	41
	07/17/17	0 - 0.5	FD	---	---	---	---	---	---	ND (1.4)	ND (19)	43
	07/17/17	2 - 3	N	---	---	---	---	---	---	ND (1.3)	ND (12)	ND (10)
	07/17/17	3 - 4	N	---	---	---	---	---	---	3.1 J	8,500	29,000
	07/17/17	5 - 6	N	---	---	---	---	---	---	ND (1.4)	ND (25)	81

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
SD-OS43	07/18/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.3)	ND (37)	120
	07/18/17	2 - 3	N	---	---	---	---	---	---	ND (1.5)	ND (23)	60
	07/18/17	5 - 6	N	---	---	---	---	---	---	ND (1.1)	ND (14)	11
SD-OS44	07/19/17	0 - 0.5	N	---	---	---	---	---	---	ND (1.1)	ND (14)	28
	07/19/17	2 - 3	N	---	---	---	---	---	---	ND (1.2)	ND (11)	ND (11)
	07/19/17	5 - 6	N	---	---	---	---	---	---	ND (1.2)	ND (16)	13
TD-3	11/12/15	0	N	---	---	---	---	---	---	---	ND (11)	58
TD-4	11/12/15	0	N	---	---	---	---	---	---	---	34	290
Category 2												
BGCS-1	09/08/88	0.5	N	460	---	---	---	---	---	---	---	---
	09/08/88	1	N	ND (10)	---	---	---	---	---	---	---	---
	09/08/88	1.5	N	120	---	---	---	---	---	---	---	---
BGCS-2	09/08/88	0.5	N	155	---	---	---	---	---	---	---	---
	09/08/88	1	N	25	---	---	---	---	---	---	---	---
	09/08/88	1.5	N	190	---	---	---	---	---	---	---	---
BGCS-3	09/08/88	0.5	N	335	---	---	---	---	---	---	---	---
	09/08/88	1	N	755	---	---	---	---	---	---	---	---
	09/08/88	1.5	N	245	---	---	---	---	---	---	---	---
BGCS-4	09/08/88	0.5	N	245	---	---	---	---	---	---	---	---
	09/08/88	1	N	205	---	---	---	---	---	---	---	---
	09/08/88	1.5	N	1,145	---	---	---	---	---	---	---	---
BGCS-5	09/08/88	0.5	N	275	---	---	---	---	---	---	---	---
	09/08/88	1	N	200	---	---	---	---	---	---	---	---
	09/08/88	1.5	N	895	---	---	---	---	---	---	---	---
BGCS-6	09/08/88	0.5	N	2,775	---	---	---	---	---	---	---	---
	09/08/88	1	N	610	---	---	---	---	---	---	---	---
	09/08/88	1.5	N	215	---	---	---	---	---	---	---	---
Spill03012004_Sam	05/21/04	0	N	---	---	---	---	---	---	ND (1)	---	---
Spill03012004_Sam	05/21/04	0	N	---	---	---	---	---	---	ND (1)	---	---

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
Spill04232006_Sam	04/26/06	0	N	---	---	---	8,000	---	---	ND (16,000) *	ND (8,000) *	240,000
Spill04232006_Sam	04/26/06	0	N	---	---	---	1,000	---	---	ND (2,000)	ND (1,000)	25,000
Spill04232006_Sam	04/26/06	0	N	---	---	---	20	---	---	ND (40)	ND (20)	510
Spill12192005_Sam	12/20/05	0	N	---	---	---	---	---	---	ND (20)	ND (10)	79
Spill12192005_Sam	12/20/05	0	N	---	---	---	---	---	---	ND (20)	ND (10)	20
Spill12192005_Sam	12/20/05	0	N	---	---	---	---	---	---	ND (20)	ND (10)	ND (20)
Spill12192005_Sam	12/20/05	0	N	---	---	---	---	---	---	ND (40)	ND (20)	420
Spill12192005_Sam	12/20/05	0	N	---	---	---	---	---	---	ND (20)	ND (10)	59
Spill12242005_Sam	03/08/06	0	N	---	---	---	10	---	---	ND (20)	ND (10)	210
Spill12242005_Sam	03/08/06	0	N	---	---	---	10	---	---	ND (20)	ND (10)	220
Spill12242005_Sam	03/08/06	0	N	---	---	---	200	---	---	ND (410)	ND (200)	4,800
Spill12242005_Sam	03/08/06	0	N	---	---	---	200	---	---	ND (400)	ND (200)	3,900
Category 3												
COM-1	07/21/93	1.7	N	---	13,500	---	---	---	---	---	---	---
COM-2	07/21/93	1	N	---	9,130	---	---	---	---	---	---	---
COM-3	07/21/93	1.7	N	---	2,610	---	---	---	---	---	---	---
COM-4	07/21/93	1.3	N	---	874	---	---	---	---	---	---	---
COM-5	07/21/93	2.3	N	---	631	---	---	---	---	---	---	---
COM-6	07/21/93	1	N	---	6,290	---	---	---	---	---	---	---
COM-7	07/21/93	1.5	N	---	5,930	---	---	---	---	---	---	---
COM-8	07/21/93	1.5	N	---	49	---	---	---	---	---	---	---
COM-9	07/21/93	1.5	N	---	8,400	---	---	---	---	---	---	---
COM-10	07/21/93	1	N	---	20,800	---	---	---	---	---	---	---
COM-11	07/21/93	2.5	N	---	7,900	---	---	---	---	---	---	---
COM-12	07/21/93	1.5	N	---	54	---	---	---	---	---	---	---
COM-13	07/21/93	1.5	N	---	2,950	---	---	---	---	---	---	---
COM-14	07/21/93	1.5	N	---	2,800	---	---	---	---	---	---	---
COM-15	07/21/93	1.5	N	---	4,120	---	---	---	---	---	---	---

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
RWQCB Environmental Screening Level [2]:				NE	NE	NE	NE	NE	NE	740	230	11,000
Background [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
COM-16	07/21/93	1.5	N	---	750	---	---	---	---	---	---	---
COM-17	07/21/93	1.7	N	---	3,930	---	---	---	---	---	---	---
COM-18	07/21/93	1.3	N	---	2,690	---	---	---	---	---	---	---
COM-20	07/21/93	2	N	---	111	---	---	---	---	---	---	---
G-1	07/21/93	1	N	---	83,200	---	---	---	---	---	---	---
G-2	07/21/93	1.7	N	---	57,600	---	---	---	---	---	---	---
G-3	07/21/93	1	N	---	10,100	---	---	---	---	---	---	---
G-4	07/21/93	0.83	N	---	25,300	---	---	---	---	---	---	---
	07/21/93	2	N	---	44,600	---	---	---	---	---	---	---
TC-1	06/14/94	1	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	390
TC-2	06/14/94	3	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	834
TC-3	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	144
TC-4	06/14/94	0	N	---	---	ND (4)	---	---	---	ND (5)	ND (5)	3,830
	06/14/94	3	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	370
TC-5	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	119
TC-6	06/14/94	2.5	N	---	---	102	---	---	---	ND (5)	ND (5)	ND (5)
	06/14/94	6.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-7	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
	06/14/94	8	N	---	---	43	---	---	---	ND (5)	ND (5)	37
TC-8	06/14/94	3.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-9	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-10	06/14/94	3	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-11	06/14/94	5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	1,670
TC-12	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	69
TC-13	06/14/94	5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	66
TC-14	06/14/94	5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	47
TC-15	06/14/94	4.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	411
TC-16	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	277

TABLE 3-23e
Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
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PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	3,900	1,100	140,000
			RWQCB Environmental Screening Level [2]:	NE	NE	NE	NE	NE	NE	740	230	11,000
			Background [3]:	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Oil and Grease	Total Recoverable Hydrocarbons	TPH as heavy oil	TPH as kerosene	TPH-Diesel (C9-C25)	TPH-Oil (C24-C40)	TPH as gasoline	TPH as diesel	TPH as motor oil
TC-17	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	335
	06/14/94	8	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	323
TC-18	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
	06/14/94	7.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	159
TC-19	06/14/94	3	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	11,900
	06/14/94	13	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	1,040
TC-20	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	444
TC-21	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	267
	06/14/94	5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
	06/14/94	10	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-22	06/14/94	4.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-23	06/14/94	5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-24	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-25	06/14/94	9.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TC-26	06/14/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TG-1	06/13/94	0	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	797
TG-2	06/13/94	0	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TG-3	06/13/94	0	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	33,900
	06/13/94	2	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	46,900
TG-4	06/13/94	0	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	1,370
TG-5	06/13/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	214
TG-6	06/13/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	188
TG-7	06/13/94	1	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TG-8	06/13/94	2	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	1,780
TG-9	06/13/94	2.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TG-10	06/13/94	2	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	2,050
TG-11	06/13/94	2	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	ND (5)
TG-12	06/13/94	0.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	535

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)								
			Commercial Screening Level [1]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**3,900**	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**740**	**230**	**11,000**
			Background [3]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Oil and Grease**	**Total Recoverable Hydrocarbons**	**TPH as heavy oil**	**TPH as kerosene**	**TPH-Diesel (C9-C25)**	**TPH-Oil (C24-C40)**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
TG-13	06/13/94	1.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	519
TG-14	06/13/94	2	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	1,200
TG-15	06/13/94	3	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	1,800
TG-17	06/13/94	1.5	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	24
TG-18	06/13/94	3	N	---	---	ND (5)	---	---	---	ND (5)	ND (5)	31

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

TABLE 3-23e

Sample Results: Total Petroleum Hydrocarbons
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. "San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final." February.

3 Background values have not been established for TPHs.

TABLE 3-23f

Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(pH units)	(µS/cm)	(mg/kg)	(mg/kg)
Comercial Regional Screening Levels [1]:				**NE**	**47,000**	**NE**	**NE**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloride**	**Fluoride**	**pH**	**Specific conductance**	**Sulfate**	**Total organic carbon**
Category 1									
AOC13-Debris	04/26/17 [Y]	0	N	---	---	7.1	---	---	---
AOC13-OS1	04/06/11	0 - 0.5	N	---	---	8.7	---	---	---
	04/06/11	2.5 - 3	N	---	---	8.3	---	---	---
	04/06/11	5.5 - 6	N	---	---	8.3	---	---	---
	04/06/11	9 - 9.5	N	---	---	9.6	---	---	---
AOC13-OS11	06/26/13	0 - 0.5	N	---	---	8	---	---	---
	06/26/13	2 - 3	N	---	---	8.3	---	---	---
	06/26/13	5 - 6	N	---	---	8.5	---	---	---
AOC13-OS12	06/26/13	0 - 0.5	N	---	---	8.1	---	---	---
	06/26/13	2 - 3	N	---	---	8.2	---	---	---
	06/26/13	2 - 3	FD	---	---	8.6	---	---	---
AOC13-OS13	06/26/13	0 - 0.5	N	---	---	8	---	---	---
	06/26/13	2 - 3	N	---	---	8	---	---	---
AOC13-OS14	07/25/13	0 - 0.5	N	---	---	8.8	---	---	---
	07/25/13	2 - 3	N	---	---	8.2	---	---	---
	07/25/13	2 - 3	FD	---	---	8.8	---	---	---
	07/25/13	5 - 6	N	---	---	8.2	---	---	---
AOC13-OS2	11/08/11	0 - 0.5	N	---	---	8.5	---	---	---
	11/08/11	2 - 3	N	---	---	7.9	---	---	---
	11/08/11	2 - 3	FD	---	---	7.7	---	---	---
	11/08/11	5 - 6	N	---	---	7.6	---	---	---
AOC13-OS3	11/08/11	0 - 0.5	N	---	---	8.7	---	---	---
	11/08/11	2 - 3	N	---	---	7.8	---	---	---

TABLE 3-23f

Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(pH units)	(µS/cm)	(mg/kg)	(mg/kg)
Comercial Regional Screening Levels [1]:				**NE**	**47,000**	**NE**	**NE**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloride**	**Fluoride**	**pH**	**Specific conductance**	**Sulfate**	**Total organic carbon**
AOC13-OS4	11/08/11	0 - 0.5	N	---	---	7.9	---	---	---
	11/08/11	2 - 3	N	---	---	8.2	---	---	---
	11/08/11	5 - 6	N	---	---	8.4	---	---	---
AOC13-Wood	04/26/17 Ж		N	---	---	5.8	---	---	---
BH-65	03/24/11	0 - 0.5	N	---	---	8.3	---	---	3,700
	03/24/11	2 - 3	N	---	---	8.5	---	---	4,800
	03/17/11	9 - 10	N	---	---	9.4	---	---	1,700
	03/17/11	14 - 15	N	---	---	9.3	---	---	2,400 J
	03/17/11	19 - 20	N	---	---	9.3	---	---	1,200
	03/17/11	29 - 30	N	---	---	9.6	---	---	910
	03/17/11	37 - 40	N	---	---	9.8	---	---	12,000
	03/17/11	49 - 50	N	---	---	9	---	---	4,200 J
	03/17/11	59 - 60	N	---	---	9.1	---	---	3,800
	03/18/11	69 - 70	N	---	---	8.7	---	---	2,900
	03/18/11	79 - 80	N	---	---	8.7	---	---	5,400 J
	03/18/11	79 - 80	FD	---	---	8.8	---	---	8,000 J
	03/18/11	89 - 90	N	---	---	8.4	---	---	3,500
	03/18/11	99 - 100	N	---	---	8.6	---	---	7,600
	03/18/11	109 - 110	N	---	---	8.2	---	---	5,800 J
	03/18/11	119 - 120	N	---	---	8.5	---	---	5,300
	03/19/11	129 - 130	N	---	---	7.7	---	---	6,300
	03/19/11	139 - 140	N	---	---	8.2	---	---	3,800

TABLE 3-23f

Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(pH units)	(µS/cm)	(mg/kg)	(mg/kg)
Comercial Regional Screening Levels [1]:				NE	47,000	NE	NE	NE	NE
DTSC-SL [2]:				NE	NE	NE	NE	NE	NE
Background [3]:				NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloride**	**Fluoride**	**pH**	**Specific conductance**	**Sulfate**	**Total organic carbon**
BH-66	03/23/11	0 - 0.5	N	---	---	8.2	---	---	2,200
	03/23/11	2 - 3	N	---	---	8.5	---	---	2,400
	03/23/11	5 - 6	N	---	---	9.5	---	---	3,400
	04/12/11	14 - 15	N	---	---	9.8	---	---	2,200 J
	04/12/11	14 - 15	FD	---	---	9.2	---	---	2,800 J
	04/12/11	19 - 20	N	---	---	9.3	---	---	2,200
	04/12/11	29 - 30	N	---	---	9.8	---	---	2,600
	04/12/11	39 - 40	N	---	---	9.3	---	---	3,900
	04/12/11	49 - 50	N	---	---	9.3	---	---	3,100
	04/13/11	59 - 60	N	---	---	9.6	---	---	2,400
	04/13/11	69 - 70	N	---	---	9.2	---	---	1,800
	04/13/11	79 - 80	N	---	---	9.3	---	---	4,900
	04/13/11	89 - 90	N	---	---	9	---	---	1,700
	04/13/11	99 - 100	N	---	---	8.8	---	---	3,500
	04/13/11	109 - 110	N	---	---	9	---	---	4,500
	04/14/11	119 - 120	N	---	---	9	---	---	2,500 J
	04/14/11	119 - 120	FD	---	---	9.2	---	---	3,200 J
	04/14/11	129 - 130	N	---	---	8.9	---	---	2,900

TABLE 3-23f

Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(pH units)	(µS/cm)	(mg/kg)	(mg/kg)
Comercial Regional Screening Levels [1]:				**NE**	**47,000**	**NE**	**NE**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloride**	**Fluoride**	**pH**	**Specific conductance**	**Sulfate**	**Total organic carbon**
BH-67	03/17/11	0 - 0.5	N	---	---	8.6	---	---	4,400
	03/17/11	2 - 3	N	---	---	8.4	---	---	3,500
	03/17/11	5 - 6	N	---	---	9.4	---	---	3,500 J
	04/29/11	9 - 10	N	---	---	9.6	---	---	2,000 J
	04/29/11	14 - 15	N	---	---	9.1	---	---	3,000
	04/29/11	19 - 20	N	---	---	9.1	---	---	2,300
	04/29/11	29 - 30	N	---	---	9.2	---	---	1,600 J
	04/29/11	39 - 40	N	---	---	9.4	---	---	1,700
	04/29/11	39 - 40	FD	---	---	9.4	---	---	1,700
	04/29/11	49 - 50	N	---	---	9.2	---	---	1,800
	04/29/11	59 - 60	N	---	---	8	---	---	6,900
	04/29/11	69 - 70	N	---	---	8.4	---	---	1,900
	04/29/11	79 - 80	N	---	---	8.2	---	---	7,400
	04/29/11	89 - 90	N	---	---	8.5	---	---	2,500
	04/29/11	99 - 100	N	---	---	8.8	---	---	3,200
	04/29/11	109 - 110	N	---	---	8.2	---	---	42
	04/29/11	119 - 120	N	---	---	8.6	---	---	84
	04/30/11	129 - 130	N	---	---	8.5	---	---	6,600
	04/30/11	139 - 140	N	---	---	8.8	---	---	7,900 J
	04/30/11	139 - 140	FD	---	---	8.4	---	---	3,300 J
	04/30/11	149 - 150	N	---	---	8.3	---	---	8,700
	04/30/11	159 - 160	N	---	---	8.3	---	---	8,000

TABLE 3-23f

Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(pH units)	(µS/cm)	(mg/kg)	(mg/kg)
Comercial Regional Screening Levels [1]:				**NE**	**47,000**	**NE**	**NE**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloride**	**Fluoride**	**pH**	**Specific conductance**	**Sulfate**	**Total organic carbon**
BH-68	03/17/11	0 - 0.5	N	---	---	7.9	---	---	8,500 J
	03/17/11	0 - 0.5	FD	---	---	8	---	---	4,100 J
	03/17/11	2 - 3	N	---	---	9.6	---	---	1,700
	03/17/11	5 - 6	N	---	---	9.4	---	---	3,400
	05/13/11	9 - 10	N	---	---	8.4	---	---	1,000
	05/13/11	14 - 15	N	---	---	9.3	---	---	2,600
	05/13/11	19 - 20	N	---	---	9.3	---	---	3,400
	05/13/11	29 - 30	N	---	---	9.2	---	---	3,700
	05/13/11	39 - 40	N	---	---	9.3	---	---	5,800
	05/13/11	49 - 50	N	---	---	9.2	---	---	3,200
	05/13/11	59 - 60	N	---	---	9.2	---	---	8,600
	05/13/11	69 - 70	N	---	---	9.1	---	---	8,900
	05/13/11	79 - 80	N	---	---	9.1	---	---	4,700
	05/13/11	89 - 90	N	---	---	9.1	---	---	5,600
	05/13/11	99 - 100	N	---	---	9.1	---	---	4,400 J
	05/13/11	99 - 100	FD	---	---	9.1	---	---	5,600 J
	05/13/11	109 - 110	N	---	---	9.1	---	---	7,800
	05/13/11	119 - 120	N	---	---	9	---	---	5,300
	05/13/11	129 - 130	N	---	---	9	---	---	6,200
	05/14/11	139 - 140	N	---	---	8.6	---	---	6,400
	05/14/11	149 - 150	N	---	---	8.6	---	---	4,900
	05/14/11	159 - 160	N	---	---	8.4	---	---	3,100
PS-10	04/13/99	0	N	---	---	---	---	25	---
PS-18	04/13/99	0	N	---	---	---	---	224	---
Category 2									

TABLE 3-23f
Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry					
				(mg/kg)	(mg/kg)	(pH units)	(µS/cm)	(mg/kg)	(mg/kg)
Comercial Regional Screening Levels [1]:				**NE**	**47,000**	**NE**	**NE**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Chloride**	**Fluoride**	**pH**	**Specific conductance**	**Sulfate**	**Total organic carbon**
BGCS-1	09/08/88	0.5	N	---	569	9.58	698	---	---
	09/08/88	1	N	---	1,695	9.53	566	---	---
	09/08/88	1.5	N	---	801	9.73	317	---	---
BGCS-2	09/08/88	0.5	N	---	600	8.64	213	---	---
	09/08/88	1	N	---	595	8.8	360	---	---
	09/08/88	1.5	N	---	719	8.7	111	---	---
BGCS-3	09/08/88	0.5	N	---	495	9.11	111	---	---
	09/08/88	1	N	---	870	8.96	435	---	---
	09/08/88	1.5	N	---	726	8.41	232	---	---
BGCS-4	09/08/88	0.5	N	---	510	8.48	329	---	---
	09/08/88	1	N	---	550	8.52	291	---	---
	09/08/88	1.5	N	---	510	8.54	345	---	---
BGCS-5	09/08/88	0.5	N	---	524	8.76	273	---	---
	09/08/88	1	N	---	657	8.79	221	---	---
	09/08/88	1.5	N	---	562	8.94	203	---	---
BGCS-6	09/08/88	0.5	N	---	595	8.78	66	---	---
	09/08/88	1	N	---	550	8.87	56	---	---
	09/08/88	1.5	N	---	595	8.78	56	---	---
Spill04292006_SS 1	05/02/06	0	N	1,900	---	8.06	900	750	---

TABLE 3-23f

Sample Results: General Chemistry Parameters
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Nots:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ϒ	debris sample
Ж	wood sample
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-23g
Sample Results: Pesticides
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC13-34	01/21/17	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC13-OS2	11/08/11	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
	11/08/11	2 - 3	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	11/08/11	2 - 3	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	11/08/11	5 - 6	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC13-OS3	11/08/11	2 - 3	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC13-OS4	11/08/11	2 - 3	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	11/08/11	5 - 6	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	07/26/11	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS2	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS3	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS6	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS10	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS11	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS12	09/27/11	0 - 0.5	N	ND (2)	7.2	6	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC13-PITOS13	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
	07/26/11	0 - 0.5	FD	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS14	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
SD-29	02/04/17	2 - 3	N	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.2)	ND (1.1)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (2.2)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.4)	ND (54) J

TABLE 3-23g

Sample Results: Pesticides
AOC 13 – Unpaved Areas within the Compressor Station
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PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1]:	27,000	830	720	950	950	970	990	970	970	940
			Background[2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
Category 1													
AOC13-1	12/05/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/15	0 - 1	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-10	12/14/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/14/15	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC13-11	01/05/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/05/16	0.5 - 1	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-12	12/05/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/15	0 - 1	FD	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
	12/05/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-13	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	98	ND (17)	---	---	123.5
	01/09/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-14	12/14/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/14/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-15	12/14/15	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	23	ND (17)	---	---	48.5
	12/14/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/14/15	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-16	01/05/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/05/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-17	12/08/15	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	52	ND (18)	---	---	79
	12/08/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	89	ND (18)	---	---	116
AOC13-18	01/06/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	0.5 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-19	01/08/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-23h
Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
AOC13-2	12/05/15	0 - 1	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/05/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC13-20	01/08/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	45	ND (18)	---	---	72
	01/08/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	47	ND (18)	---	---	74
AOC13-21	01/08/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-22	01/08/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	30	36	ND (17)	ND (17)	83
	01/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	17	ND (17)	ND (17)	42.5
AOC13-23	01/08/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	31	45	---	---	94
	01/08/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	29	41	---	---	88
AOC13-24	01/08/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	0 - 0.5	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-25	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	56	42	---	---	115
	01/09/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	49	30	---	---	96
AOC13-26	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/09/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/09/16	2 - 3	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	20	19	---	---	56
AOC13-27	01/09/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	38	ND (18)	---	---	65
	01/09/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	140	60	---	---	217
AOC13-28	01/09/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	58	ND (17)	---	---	83.5
	01/09/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-29	01/09/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/09/16	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/09/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	23	---	---	48.5
AOC13-3	12/14/15	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	37	ND (17)	---	---	62.5
	12/14/15	2 - 3	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
		Commercial Screening Level[1]:		27,000	830	720	950	950	970	990	970	970	940
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC13-30	01/07/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	260	170	---	---	448
	01/07/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	110	53	---	---	181
AOC13-31	01/07/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/07/16	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/07/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	53	ND (17)	---	---	78.5
AOC13-32	12/04/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/04/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-33	02/18/17 [Y]	0	N	ND (18)	ND (35)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	02/15/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	2,600 J	920	---	---	3,537
	02/15/17	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	1,100 J	710	---	---	1,827
	02/15/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	650	ND (17)	---	---	675.5
AOC13-33-Asphalt	04/26/17 [ß]		N	ND (18) J	ND (35) J	ND (18) J	ND (18) J	ND (18) J	30 J	ND (18) J	---	---	---
AOC13-4	12/14/15	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/14/15	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/14/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-5	01/05/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/05/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-6	01/05/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/05/16	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-7	12/14/15	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	120	---	---	147
	12/14/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-8	12/05/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/15	0 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-9	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	250	ND (17)	---	---	275.5
	01/09/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-Asphalt1	04/26/17 [ß]		N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	---
AOC13-Asphalt2	04/26/17 [ß]		N	ND (18) J	ND (36) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	ND (18) J	---	---	---

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
		Commercial Screening Level [1]:		27,000	830	720	950	950	970	990	970	970	940
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
AOC13-Debris	04/26/17 Y	0	N	ND (18) J	ND (35)	ND (18)	ND (18)	ND (18)	2,800	1,200	---	---	4,018
AOC13-OS11	06/26/13	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	120	ND (17)	---	---	145.5
	06/26/13	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	80	ND (17)	---	---	105.5
	06/26/13	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	19	ND (17)	---	---	44.5
AOC13-OS12	06/26/13	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	53	60	---	---	130
	06/26/13	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	40	ND (17)	---	---	65.5
	06/26/13	2 - 3	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-OS13	06/26/13	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	18	---	---	54
	06/26/13	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-OS14	07/25/13	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/25/13	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/25/13	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/25/13	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-OS15	04/25/17	3 - 3.1	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	46	---	---	73
AOC13-OS16	04/25/17	2.8 - 2.9	N	ND (34) J	ND (69)	ND (34)	ND (34)	ND (34)	ND (34)	ND (34)	---	---	ND (68)
AOC13-OS17	04/26/17	3.8 - 3.9	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	170	---	---	197
AOC13-OS18	04/25/17	3.8 - 3.9	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	200	---	---	225.5
AOC13-OS19	04/26/17	4.4 - 4.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	52	---	---	77.5
AOC13-OS2	11/08/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	150	ND (17)	ND (17)	ND (17)	175.5
	11/08/11	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	57	ND (17)	ND (17)	ND (17)	82.5
	11/08/11	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	58	ND (17)	ND (17)	ND (17)	83.5
	11/08/11	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	67	ND (17)	ND (17)	ND (17)	92.5
AOC13-OS3	11/08/11	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC13-OS4	11/08/11	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	ND (17)	ND (17)	55.5
	11/08/11	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	170	ND (17)	ND (17)	ND (17)	195.5

TABLE 3-23h
Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
		Commercial Screening Level [1] :		27,000	830	720	950	950	970	990	970	970	940
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
AOC13-PITOS1	07/26/11	0 - 0.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	2,400 J	ND (16)	ND (16)	ND (16)	2,424
	07/26/11	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	2,100 J	ND (17)	ND (17)	ND (17)	2,126
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	74	ND (17)	ND (17)	ND (17)	99.5
	07/26/11	9 - 9.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC13-PITOS2	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	370 J	ND (17)	ND (17)	ND (17)	395.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	110	ND (17)	ND (17)	ND (17)	135.5
	07/26/11	4 - 4.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	73	ND (17)	ND (17)	ND (17)	98.5
AOC13-PITOS3	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	92	ND (17)	ND (17)	ND (17)	117.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	57	ND (17)	ND (17)	ND (17)	82.5
	07/26/11	2 - 3	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	29	ND (17)	ND (17)	ND (17)	54.5
	07/26/11	6 - 6.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	58	ND (17)	ND (17)	ND (17)	83.5
AOC13-PITOS6	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	210	ND (17)	ND (17)	ND (17)	235.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	370	ND (17)	ND (17)	ND (17)	395.5
	07/26/11	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	91	ND (17)	ND (17)	ND (17)	116.5
	07/26/11	7 - 7.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	50	ND (17)	ND (17)	ND (17)	75.5
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	140	ND (17)	ND (17)	165.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	2 - 3	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	8 - 8.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	24	ND (17)	ND (17)	ND (17)	49.5
	07/26/11	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	9 - 10	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	11 - 11.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	36	ND (17)	ND (17)	ND (17)	61.5
	07/26/11	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	5 - 6	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	28	ND (17)	ND (17)	ND (17)	53.5

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC13-PITOS10	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	2 - 3	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	110	ND (16)	ND (16)	ND (16)	134
	07/26/11	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	7 - 7.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC13-PITOS11	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	110	ND (17)	ND (17)	135.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	2 - 3	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	7.5 - 8	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	30	ND (17)	ND (17)	55.5
AOC13-PITOS12	09/27/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17) J	ND (34)
	09/27/11	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17) J	ND (34)
	09/27/11	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17) J	ND (34)
	09/27/11	9 - 9.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17) J	ND (17) J	ND (34)
	09/27/11	11 - 11.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16) J	ND (16) J	ND (32)
AOC13-PITOS13	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	70	ND (17)	ND (17)	ND (17)	95.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	62	ND (17)	ND (17)	ND (17)	87.5
	07/26/11	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	84	ND (17)	ND (17)	ND (17)	109.5
	07/26/11	9 - 9.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC13-PITOS14	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	30	ND (17)	ND (17)	55.5
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	150	ND (17)	ND (17)	ND (17)	175.5
	07/26/11	4 - 4.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	120	ND (17)	ND (17)	ND (17)	145.5
AOC13-Tar	04/26/17 Ψ	0	N	ND (33) J	ND (67) J	ND (33) J	ND (33) J	ND (33) J	ND (33) J	ND (33) J	---	---	ND (66)

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
BH-65	03/24/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	03/24/11	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	48	ND (17)	---	---	73.5
	03/17/11	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	29 - 30	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	37 - 40	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	49 - 50	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	03/17/11	59 - 60	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/18/11	69 - 70	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/18/11	79 - 80	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/18/11	79 - 80	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/18/11	89 - 90	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	03/18/11	99 - 100	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/18/11	109 - 110	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	03/18/11	119 - 120	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/19/11	129 - 130	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/19/11	139 - 140	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1] :	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
BH-66	03/23/11	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	03/23/11	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	03/23/11	5 - 6	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/12/11	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/12/11	14 - 15	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/12/11	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	38	ND (17)	---	---	63.5
	04/12/11	29 - 30	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/12/11	39 - 40	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/12/11	49 - 50	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/13/11	59 - 60	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/13/11	69 - 70	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/13/11	79 - 80	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/13/11	89 - 90	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/13/11	99 - 100	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/13/11	109 - 110	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/14/11	119 - 120	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/14/11	119 - 120	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/14/11	129 - 130	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
BH-67	03/17/11	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	03/17/11	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	04/29/11	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	19 - 20	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	29 - 30	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	39 - 40	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	39 - 40	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	49 - 50	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	59 - 60	N	ND (19)	ND (39)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
	04/29/11	69 - 70	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	79 - 80	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/29/11	89 - 90	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	04/29/11	99 - 100	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	109 - 110	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/29/11	119 - 120	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/30/11	129 - 130	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/30/11	139 - 140	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/30/11	139 - 140	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/30/11	149 - 150	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/30/11	159 - 160	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
		Commercial Screening Level [1]:		27,000	830	720	950	950	970	990	970	970	940
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
BH-68	03/17/11	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	03/17/11	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	03/17/11	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	03/17/11	5 - 6	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
	05/13/11	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	14 - 15	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	19 - 20	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	29 - 30	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	39 - 40	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/13/11	49 - 50	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	59 - 60	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	69 - 70	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	79 - 80	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/13/11	89 - 90	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/13/11	99 - 100	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/13/11	99 - 100	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/13/11	109 - 110	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	05/13/11	119 - 120	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/13/11	129 - 130	N	ND (17)	ND (35)	ND (17)	31	ND (17)	ND (17)	ND (17)	---	---	56.5
	05/14/11	139 - 140	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	05/14/11	149 - 150	N	ND (17) J	ND (35) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	---	---	ND (34)
	05/14/11	159 - 160	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-02	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	110	ND (17)	---	---	135.5
PA-22	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-OS3	12/10/14	0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	230	ND (17)	---	---	255.5
	12/10/14	3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	22	ND (17)	---	---	47.5
SD-24	03/09/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	29	33	---	---	79
	03/09/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)

TABLE 3-23h
Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1] :	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sampl e Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
SD-28	02/05/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	02/05/17	2 - 3	N	ND (18)	ND (37)	ND (18)	ND (18) J	ND (18)	34	ND (18)	---	---	61
	02/05/17	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	02/05/17	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
SD-29	02/04/17	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	02/04/17	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	02/05/17	4.5 - 5	N	ND (18)	ND (35)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	02/05/17	7.5 - 8	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-31	02/15/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	950 J	280 J	---	---	1,247
	02/15/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	1,100 J	400 J	---	---	1,517
	02/15/17	1 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	1,100	520	---	---	1,637
	02/15/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	64.5
SD-07	12/17/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/18/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/18/15	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/18/15	9 - 10	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS30	07/18/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	310	140	---	---	467
	07/18/17	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	130 J	ND (18)	---	---	157
	07/18/17	4 - 5	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	120	150	---	---	288
	07/18/17	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	160 J	210 J	---	---	388
	07/18/17	7 - 8	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	110 J	96 J	---	---	224
SD-OS34	12/02/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/02/16	0.5 - 1	N	ND (23)	ND (47)	ND (23)	ND (23)	ND (23)	480	ND (23)	---	---	514.5
	12/02/16	1 - 1.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	44	---	---	69.5
	12/03/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	38	22	---	---	77
	12/03/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/03/16	5 - 6	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	18	ND (17)	---	---	43.5

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls

AOC 13 – Unpaved Areas within the Compressor Station

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
SD-OS34A	12/02/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	73	ND (17)	---	---	98.5
	12/02/16	1 - 1.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/02/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/02/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS35	12/04/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	130	53	---	---	200
	12/04/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/05/16	4.5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS35A	12/05/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/16	4.5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	120	ND (17)	---	---	145.5
SD-OS36	12/01/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/01/16	2.5 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/01/16	5 - 6	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS38	12/13/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	68	94	---	---	179
	12/13/16	3 - 4	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
SD-OS39	11/29/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	95 J	ND (17) J	---	---	120.5
	11/29/16	0 - 0.5	FD	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	260 J	72 J	---	---	348
	11/29/16	2.5 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/29/16	2.5 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS40	12/06/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/06/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/06/16	5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/09/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/09/16	6 - 7	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	27	ND (19)	---	---	55.5
	12/11/16	7 - 8	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/09/16	7 - 8	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/09/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
		Commercial Screening Level [1] :		27,000	830	720	950	950	970	990	970	970	940
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
SD-OS41	12/13/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	22	58	---	---	97
	12/13/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/14/16	5 - 6	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	110	53	---	---	182
	12/14/16	8 - 8.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	20	---	---	47
SD-OS42	07/17/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	210	ND (17)	---	---	235.5
	07/17/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	62	ND (17)	---	---	87.5
	07/17/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/17/17	3 - 4	N	ND (39)	ND (79)	ND (39)	ND (39)	ND (39)	1,900	ND (39)	---	---	1,959
	07/17/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS43	07/18/17	0 - 0.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	89	ND (16)	---	---	113
	07/18/17	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/18/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS44	07/19/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/19/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	07/19/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
TD-3	11/12/15	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	690	370	---	---	1,078
TD-4	11/12/15	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
Category 2													
Spill03012004_Sam	05/21/04	0	N	---	---	---	---	---	---	ND (300)	---	---	ND (150)
Spill03012004_Sam	05/21/04	0	N	---	---	---	---	---	---	ND (300)	---	---	ND (150)
Category 3													
COM-1	07/21/93	1.7	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-2	07/21/93	1	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-6	07/21/93	1	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-9	07/21/93	1.5	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-11	07/21/93	2.5	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-12	07/21/93	1.5	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-14	07/21/93	1.5	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
		Commercial Screening Level [1]:		27,000	830	720	950	950	970	990	970	970	940
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
COM-17	07/21/93	1.7	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
COM-20	07/21/93	2	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
G-1	07/21/93	1	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
G-2	07/21/93	1.7	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
G-3	07/21/93	1	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
G-4	07/21/93	0.83	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *
	07/21/93	2	N	ND (1,000)	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	ND (1,000) *	---	---	ND (2,000) *

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

ß	black sandy material
Ƴ	debris sample
ψ	tar sample
*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

TABLE 3-23h

Sample Results: Polychlorinated Biphenyls
AOC 13 – Unpaved Areas within the Compressor Station
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1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-23i
Sample Results: Dioxins and Furans
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC13-10	12/14/15	0 - 0.5	N	38 J	6.2 J	ND (0.59) J	ND (0.38) J	ND (0.74) J	ND (0.38) J	ND (0.57) J	ND (0.37) J	ND (0.68) J	ND (0.59) J	ND (0.47) J	ND (19) J	ND (1.3) J	ND (0.19) J	ND (0.36) J	380 J	ND (6) J	2.3
	12/14/15	2 - 3	N	ND (7) J	ND (1.1) J	ND (1.3) J	ND (0.59) J	ND (0.68) J	ND (0.59) J	ND (0.65) J	ND (0.58) J	ND (0.79) J	ND (0.76) J	ND (0.54) J	ND (20) J	ND (2.2) J	ND (0.15) J	ND (0.21) J	56 J	ND (1.6) J	2.1
AOC13-11	01/05/16	0 - 0.5	N	47 J	8.6 J	ND (0.39) J	ND (0.49) J	ND (1.3) J	ND (1.7) J	ND (1) J	ND (0.48) J	ND (0.41) J	ND (0.38) J	ND (0.73) J	ND (7.2) J	ND (1.7) J	ND (0.11) J	ND (0.35) J	350 J	6.2 J	1.8
	01/05/16	2 - 3	N	ND (1.2) J	ND (0.47) J	ND (0.11) J	ND (0.09) J	ND (0.45) J	ND (0.36) J	ND (0.43) J	ND (0.085) J	ND (0.52) J	ND (0.2) J	2 J	ND (9.2) J	2.1 J	ND (0.056) J	ND (0.064) J	ND (8.1)	ND (0.19) J	1.4
AOC13-12	12/05/15	2 - 3	N	49 J	ND (2) J	ND (0.35) J	ND (0.37) J	ND (0.97) J	ND (0.36) J	ND (0.29) J	ND (0.35) J	ND (0.37) J	ND (0.15) J	ND (1.3) J	ND (6.8) J	ND (0.54) J	ND (0.11) J	1.6 J	320 J	9.4 J	1.5
AOC13-13	01/09/16	0 - 0.5	N	360 J	42 J	ND (2.8) J	ND (1.3) J	ND (0.77) J	11 J	ND (3.2) J	4.9 J	ND (0.89) J	ND (0.79) J	ND (0.77) J	ND (50) J	ND (0.8) J	ND (0.3) J	ND (0.37) J	3,500 J	82 J	**10**
	01/09/16	2 - 3	N	ND (11) J	ND (1.2) J	ND (0.44) J	ND (0.29) J	ND (0.26) J	ND (0.49) J	ND (0.25) J	ND (0.34) J	ND (0.3) J	ND (0.24) J	ND (0.17) J	ND (1.4) J	ND (0.18) J	ND (0.11) J	ND (0.15) J	120 J	ND (2.9) J	0.48
AOC13-15	12/14/15	0 - 0.5	N	170 J	17 J	ND (0.87) J	2.2 J	1.4 J	5.3 J	1.9 J	ND (3.3) J	ND (0.37) J	ND (1) J	ND (0.5) J	ND (13) J	0.83 J	ND (0.11) J	0.67 J	1,400 J	18 J	5.1
	12/14/15	2 - 3	N	ND (2.5) J	ND (0.61) J	ND (0.14) J	ND (0.17) J	ND (0.41) J	ND (0.2) J	ND (0.39) J	ND (0.17) J	ND (0.47) J	ND (0.21) J	ND (0.38) J	ND (3.3) J	ND (0.98) J	ND (0.09) J	ND (0.14) J	ND (27)	ND (0.22) J	ND (0.59)
	12/14/15	5 - 6	N	2.7 J	ND (1.1) J	ND (0.84) J	0.71 J	ND (0.68) J	ND (1.1) J	ND (0.65) J	ND (0.72) J	ND (0.78) J	ND (0.73) J	1.2 J	ND (3.3) J	1.7 J	0.36 J	ND (0.34) J	ND (32)	2.1 J	1.8
AOC13-16	01/05/16	0 - 1	N	3.5 J	ND (0.52)	ND (0.083)	ND (0.15)	ND (0.055)	ND (0.22)	ND (0.051)	ND (0.057)	ND (0.16)	ND (0.052)	ND (0.11)	ND (0.68)	ND (0.12)	ND (0.07)	ND (0.55)	48	ND (0.78)	0.23
	01/05/16	2 - 3	N	11 J	2 J	ND (0.28)	ND (0.13)	ND (0.17)	ND (0.56)	ND (0.16)	ND (0.12)	ND (0.2)	ND (0.063)	ND (0.22)	ND (13)	ND (0.24)	ND (0.063)	ND (0.25)	81	9.1 J	0.99
AOC13-17	12/08/15	0 - 0.5	N	5,500 J	730 J	48 J	19 J	23 J	120 J	18 J	38 J	7.1 J	12 J	4.8 J	ND (920) J	ND (5.6) J	1.7 J	3.9 J	60,000 J	2,100 J	**160**
	12/08/15	2 - 3	N	3,400 J	570 J	34 J	29 J	26 J	120 J	38 J	53 J	7.1 J	19 J	4.9 J	ND (600) J	7.4 J	ND (1.9) J	1.4 J	31,000 J	730 J	**130**
AOC13-18	01/06/16	0 - 0.5	N	460 J	33 J	ND (2.2) J	2.9 J	ND (1) J	9.1 J	ND (0.92) J	ND (5.1) J	ND (1.2) J	ND (1.5) J	ND (1) J	ND (46) J	ND (0.34) J	ND (0.12) J	ND (0.67) J	5,100 J	89 J	**11**
AOC13-19	01/08/16	0 - 0.5	N	120 J	9.3 J	ND (0.55) J	ND (1.4) J	ND (0.22) J	4 J	ND (0.38) J	ND (0.56) J	ND (0.25) J	ND (0.89) J	ND (0.2) J	ND (17) J	ND (0.48) J	ND (0.19) J	1.4 J	1,100 J	21 J	3.8
	01/08/16	2 - 3	N	12 J	ND (1.5) J	ND (0.18) J	ND (0.26) J	ND (0.38) J	ND (0.25) J	ND (0.34) J	ND (0.25) J	ND (0.44) J	ND (0.29) J	ND (0.21) J	ND (2.1) J	ND (0.21) J	ND (0.13) J	ND (0.2) J	110 J	ND (2.9) J	0.62
AOC13-22	01/08/16	0 - 0.5	N	2,100 J	150 J	ND (11) J	14 J	8.9 J	50 J	8.3 J	23 J	ND (3) J	6 J	ND (3.5) J	ND (300) J	4.4 J	ND (0.29) J	3 J	24,000 J	370 J	**63**
	01/08/16	2 - 3	N	2,700 J	210 J	17 J	16 J	14 J	67 J	12 J	30 J	5 J	10 J	ND (2.3) J	ND (320) J	5.2 J	ND (0.76) J	ND (1.7) J	32,000 J	390 J	**81**
AOC13-23	01/08/16	0 - 0.5	N	410 J	18 J	ND (0.75) J	ND (1.7) J	ND (1.3) J	7.1 J	ND (1.9) J	ND (2.7) J	ND (0.77) J	ND (1.2) J	ND (1.3) J	ND (25) J	ND (1.4) J	ND (0.3) J	ND (0.33) J	3,400 J	35 J	**8.7**
	01/08/16	2 - 3	N	400 J	17 J	1.2 J	ND (2.3) J	ND (0.82) J	8.9 J	1.7 J	ND (2.2) J	ND (0.95) J	ND (1.3) J	ND (0.7) J	ND (28) J	ND (0.73) J	ND (1) J	ND (0.5) J	3,300 J	37 J	**9.3**
AOC13-25	01/09/16	0 - 0.5	N	1,500 J	45 J	3.3 J	5.5 J	2.7 J	36 J	1.8 J	14 J	ND (0.69) J	ND (2.1) J	1.9 J	ND (81) J	ND (0.44) J	ND (0.086) J	ND (0.89) J	10,000 J	82 J	**30**
AOC13-27	01/09/16	0 - 0.5	N	ND (64) J	ND (5.9) J	ND (6.6) J	ND (8.4) J	ND (4.7) J	ND (8.1) J	ND (4.2) J	ND (8) J	ND (5.4) J	ND (5.8) J	ND (2.1) J	ND (4.7) J	ND (2.1) J	ND (6.8) J	ND (10) J	400 J	ND (5.9) J	**9.8**
	01/09/16	2 - 3	N	990 J	ND (4.4) J	ND (5) J	9.3 J	4.2 J	27 J	ND (4.4) J	15 J	ND (0.97) J	ND (5.5) J	ND (0.37) J	ND (54) J	ND (1.7)	ND (0.66) J	ND (1.1) J	8,000 J	64 J	**24**
AOC13-28	01/09/16	0 - 0.5	N	1,400 J	140 J	11 J	9.6 J	9 J	40 J	4.5 J	19 J	ND (1.6) J	7.2 J	ND (2) J	ND (190) J	2.8 J	ND (1.2) J	1.7 J	16,000 J	360 J	**47**
	01/09/16	2 - 3	N	200 J	11 J	0.84 J	ND (0.85) J	1.5 J	ND (3.8) J	ND (0.82) J	1.9 J	ND (0.16) J	ND (0.38) J	0.56 J	ND (16) J	0.57 J	ND (0.076) J	ND (0.32) J	2,100 J	22 J	4.6
AOC13-30	01/07/16	0 - 0.5	N	14,000 J	1,100 J	93 J	40 J	62 J	290 J	27 J	76 J	22 J	20 J	11 J	ND (3,000) J	21 J	ND (2.7) J	ND (3.1) J	130,000 J	3,700 J	**420**
	01/07/16	2 - 3	N	380 J	44 J	3.7 J	ND (1.8) J	ND (2.2) J	11 J	2.7 J	3.2 J	ND (0.44) J	1.2 J	ND (0.66) J	ND (77) J	ND (0.74) J	ND (0.16) J	ND (0.17) J	4,400 J	95 J	**13**
AOC13-31	01/07/16	0 - 0.5	N	4,300 J	220 J	18 J	14 J	22 J	81 J	ND (6.2) J	27 J	9.5 J	6.3 J	ND (3.7) J	ND (580) J	9.8 J	ND (0.75) J	3.9 J	43,000 J	520 J	**110**
	01/07/16	2 - 3	N	3,600 J	270 J	18 J	19 J	18 J	87 J	ND (9.8) J	33 J	5.8 J	12 J	6.8 J	ND (510) J	ND (4.9) J	ND (1.7) J	ND (0.13) J	47,000 J	620 J	**110**
AOC13-33	02/15/17	0 - 0.5	N	62,000	4,900	460	380	420	1,900	260	760	96	320	69	ND (11,000)	120	69	19	680,000 J	14,000	**2,200**
	02/15/17	0 - 0.5	FD	46,000 J	4,100	310	380	320	1,600	300	720	92	340	65	ND (7,500)	130	66	ND (22)	380,000 J	9,700	**1,800**
	02/15/17	2 - 3	N	18,000	1,900	150 J	88	110 J	400	75	160 J	24	48	ND (14)	ND (2,500)	ND (26)	ND (0.3)	15	140,000	5,700	**510**
AOC13-33-Asphalt	04/26/17		N	1,900	ND (9.2)	ND (10)	ND (7.8)	ND (12)	ND (7.8)	ND (11)	ND (7.5)	ND (13)	ND (16)	ND (7.1)	ND (12)	ND (7.3)	ND (4.8)	ND (6.1)	20,000	340	**41**

TABLE 3-23i
Sample Results: Dioxins and Furans
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
AOC13-4	12/14/15	0 - 0.5	N	6 J	ND (1.1) J	ND (0.37) J	ND (0.15) J	ND (0.38) J	ND (0.25) J	ND (0.37) J	ND (0.15) J	ND (0.44) J	ND (0.23) J	ND (0.22) J	ND (2.1) J	ND (0.23) J	ND (0.066) J	ND (0.13) J	56 J	ND (0.55) J	0.47
	12/14/15	2 - 3	N	3.2 J	ND (0.18) J	ND (0.22) J	ND (0.077) J	ND (0.058) J	ND (0.077) J	ND (0.056) J	ND (0.075) J	ND (0.067) J	ND (0.086) J	ND (0.077) J	ND (0.6) J	ND (0.18) J	ND (0.062) J	ND (0.05) J	ND (32)	0.93 J	0.19
AOC13-7	12/14/15	0 - 0.5	N	300 J	35 J	3.6 J	3.8 J	ND (0.68) J	10 J	ND (4.4) J	ND (6.2) J	ND (0.79) J	ND (2.2) J	ND (2.9) J	ND (27) J	ND (2.3) J	ND (0.27) J	ND (0.39) J	2,700 J	40 J	**9.2**
	12/14/15	2 - 3	N	7.4 J	1.6 J	ND (0.52) J	ND (0.45) J	ND (0.57) J	ND (0.23) J	ND (0.54) J	ND (0.22) J	ND (0.66) J	ND (0.41) J	0.86 J	ND (1.7) J	1.1 J	ND (0.17) J	ND (0.17) J	69 J	ND (2.3) J	0.99
AOC13-9	01/09/16	0 - 0.5	N	3,100 J	260 J	22 J	10 J	16 J	68 J	ND (5) J	16 J	7 J	ND (4.4) J	ND (1.6) J	ND (430) J	4.9 J	ND (0.8) J	ND (0.62) J	32,000 J	710 J	**81**
	01/09/16	2 - 3	N	ND (9.6) J	ND (2.8) J	ND (0.38) J	ND (0.19) J	ND (0.67) J	ND (0.18) J	ND (0.62) J	ND (0.15) J	ND (0.77) J	ND (0.33) J	ND (0.43) J	ND (3.9) J	ND (1.2) J	ND (0.2) J	ND (0.35) J	110 J	8.8 J	0.89
AOC13-Asphalt1	04/26/17		N	ND (240) J	ND (19) J	ND (21) J	ND (19) J	ND (27) J	ND (26) J	ND (25) J	ND (25) J	ND (30) J	ND (42) J*	ND (16) J	120 J	ND (16) J	ND (18) J	ND (12) J	ND (2,200) J	ND (73) J	**55**
AOC13-Asphalt2	04/26/17		N	ND (1,600) J	ND (470) J	260 J	ND (240) J	ND (220) J	ND (240) J	ND (350) J	ND (230) J	ND (240) J	ND (440) J*	ND (150) J	ND (440) J	ND (170) J	ND (180) J*	ND (160) J	22,000 J	ND (1,800) J	**460**
AOC13-Debris	04/26/17	0	N	1,100,000 J	110,000 J	9,600 J	3,400 J	7,600 J	45,000 J	ND (1,800) J	5,600 J	3,600 J	1,300 J	1,600 J	ND (700,000) J	3,000 J	ND (140) J*	730 J	550,000 J	250,000 J	**56,000**
AOC13-OS19	04/26/17	4.4 - 4.5	N	ND (31)	ND (5.3)	ND (9.9)	ND (11)	ND (13)	ND (11)	ND (12)	ND (11)	ND (15)	ND (14)	ND (6)	ND (13)	ND (6.2)	ND (6.5)	ND (7.1)	ND (200) J	ND (33)	ND (16)
AOC13-Tar	04/26/17	0	N	ND (520) J	ND (480) J	ND (240) J	ND (690) J	ND (760) J	ND (690) J	ND (710) J	ND (670) J	ND (840) J	ND (1,200) J*	ND (790) J	ND (770) J	ND (820) J	ND (520) J*	ND (990) J	ND (5,000) J	ND (1,200) J	ND (1,300) *
BH-65	03/24/11	0 - 0.5	N	1,400	ND (110)	6.3 J	ND (3.3)	5.8 J	41	ND (3.6)	15	ND (2.4)	ND (1.6)	ND (1.5)	4.4 J	2.6 J	0.54 J	0.95 J	11,000	230	**27**
	03/24/11	2 - 3	N	510	ND (63)	3.2 J	ND (2.1)	3.4 J	13	ND (3)	4 J	1.4 J	ND (0.94)	ND (0.78)	2.7 J	1.2 J	ND (0.088)	ND (0.6)	6,800	80	**11**
BH-66	03/23/11	0 - 0.5	N	39	ND (5.3)	ND (0.42)	0.31 J	ND (0.29)	ND (1.2)	ND (0.28)	ND (0.41)	ND (0.1)	ND (0.21)	ND (0.076)	0.4 J	ND (0.19)	ND (0.055)	0.19 J	530	12 J	0.95
BH-67	03/17/11	0 - 0.5	N	0.66 J	ND (0.61)	ND (0.097)	ND (0.1)	ND (0.033)	ND (0.09)	ND (0.24)	ND (0.068)	ND (0.039)	ND (0.035)	ND (0.042)	0.11 J	ND (0.057)	ND (0.024)	ND (0.27)	ND (4.5)	ND (0.35)	0.1
	03/17/11	2 - 3	N	0.28 J	ND (0.26)	ND (0.082)	ND (0.099)	ND (0.1)	ND (0.13)	ND (0.15)	ND (0.13)	ND (0.19)	ND (0.18)	0.25 J	ND (0.036)	ND (0.16)	ND (0.15)	ND (0.33)	ND (0.9)	ND (0.22)	0.26
	03/17/11	5 - 6	N	0.27 J	ND (0.21)	ND (0.094)	0.15 J	ND (0.16)	ND (0.18)	ND (0.13)	0.16 J	ND (0.15)	ND (0.22)	0.33 J	ND (0.12)	0.27 J	ND (0.15)	ND (0.35)	ND (1)	ND (0.22)	0.37
BH-68	03/17/11	0 - 0.5	N	0.68 J	ND (0.76)	ND (0.29)	0.63 J	ND (0.64)	ND (0.58)	ND (0.75)	0.59 J	ND (0.42)	ND (0.68)	0.72 J	0.73 J	0.91 J	ND (0.18)	ND (0.33)	ND (3.2)	ND (0.38)	1.1
	03/17/11	0 - 0.5	FD	0.73 J	0.82 J	ND (0.065)	ND (0.11)	ND (0.13)	ND (0.05)	0.46 J	0.16 J	ND (0.11)	ND (0.26)	ND (0.17)	0.35 J	0.56 J	ND (0.13)	ND (0.48)	7.4 J	ND (0.4)	0.52
SD-24	03/09/16	0 - 1	N	220 J	ND (17) J	ND (1.3) J	ND (3.4) J	ND (1.5) J	ND (7.6) J	ND (1.3) J	ND (5.8) J	ND (1.8) J	ND (2.1) J	ND (1.1) J	ND (25) J	ND (1.8) J	ND (0.32) J	ND (1.5) J	2,100 J	39 J	**6.8**
SD-28	02/05/17	0 - 0.5	N	41	4.1 J	ND (0.61)	ND (0.53)	ND (0.23)	ND (0.51)	ND (0.21)	ND (0.5)	ND (0.27)	ND (0.31)	ND (0.17)	ND (4.3)	ND (0.17)	ND (0.11)	ND (0.25)	340	8.1 J	1.1
	02/05/17	2 - 3	N	320	32	2.5 J	1.4 J	1.4 J	8.3 J	1 J	3 J	0.75 J	ND (1.1)	ND (0.31)	ND (77)	0.79 J	ND (0.14)	0.7 J	3,200	77	**11**
SD-31	02/15/17	0 - 0.5	N	12,000	1,000	86	62	43	250	31	110	13	37	ND (7.5)	ND (1,800)	15	ND (4.6)	ND (8.3)	120,000	3,200	**350**
SD-OS34	12/02/16	0 - 0.5	N	37,000	2,400	120	140	120	620	95	280	21	68	15	ND (1,400)	24	7.8	9.3	350,000	6,800	**780**

Notes:
Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ß	black sandy material
Y	debris sample
ψ	tar sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram

TABLE 3-23i

Sample Results: Dioxins and Furans
AOC 13 – Unpaved Areas within the Compressor Station
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PG&E Topock Compressor Station, Needles, California

DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-23j

Constituent Concentrations in Soil Compared to Screening Values
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	29	49 / 51 (96%)	2,200	26	(5.58)	NA	(NA)	5	(220)
Metals										
Antimony	mg/kg	104	11 / 328 (3.4%)	10	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	104	326 / 328 (99%)	50	1	(11)	NA	(NA)	1	(0.36) *
Arsenic, STLC	mg/L	1	1 / 1 (100%)	0.24	NA	(NE)	NA	(NA)	NA	(NE)
Barium	mg/kg	104	328 / 328 (100%)	1,000	5	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	104	25 / 328 (7.6%)	1	2	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	104	24 / 328 (7.3%)	26	12	(1.1)	NA	(NA)	3	(7.3)
Cadmium, STLC	mg/L	1	1 / 1 (100%)	0.072	NA	(NE)	NA	(NA)	NA	(NE)
Chromium, Hexavalent	mg/kg	107	89 / 330 (27%)	12.2	29	(0.83)	NA	(NA)	5	(6.3)
Chromium, total	mg/kg	113	338 / 339 (100%)	780	35	(39.8)	NA	(NA)	0	(170,000)
Chromium-STLC	mg/L	1	1 / 1 (100%)	2.9	NA	(NE)	NA	(NA)	NA	(NE)
Cobalt	mg/kg	104	323 / 328 (98%)	27	12	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	113	315 / 339 (93%)	830	74	(16.8)	NA	(NA)	0	(47,000)
Copper, STLC	mg/L	1	1 / 1 (100%)	1.5	NA	(NE)	NA	(NA)	NA	(NE)
Lead	mg/kg	104	327 / 328 (100%)	1,100	81	(8.39)	NA	(NA)	7	(320)
Lead, STLC	mg/L	1	1 / 1 (100%)	2	NA	(NE)	NA	(NA)	NA	(NE)
Mercury	mg/kg	121	77 / 345 (22%)	25	NA	(NE)	NA	(NA)	1	(4.5)
Mercury, dissolved	mg/L	3	3 / 3 (100%)	0.005	NA	(NE)	NA	(NA)	NA	(NE)
Mercury, STLC	mg/L	1	0 / 1 (0%)	ND (0.0005)	NA	(NE)	NA	(NA)	NA	(NE)
Molybdenum	mg/kg	104	70 / 328 (21%)	220	41	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	113	339 / 339 (100%)	210	21	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	104	15 / 328 (4.6%)	3	4	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	104	5 / 328 (1.5%)	1	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	104	23 / 328 (7.0%)	5.9	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	104	328 / 328 (100%)	63	6	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	113	339 / 339 (100%)	2,200	50	(58)	NA	(NA)	0	(350,000)

TABLE 3-23j

Constituent Concentrations in Soil Compared to Screening Values
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	20	25 / 25 (100%)	12,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	20	25 / 25 (100%)	33,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	22	27 / 27 (100%)	23,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	20	25 / 25 (100%)	8,100	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	22	27 / 27 (100%)	350	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	20	25 / 25 (100%)	4,100	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	20	24 / 25 (96%)	970	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	17	5 / 19 (26%)	5	NA	(NE)	NA	(NA)	0	(150)
Semivolatile Organic Compounds										
bis (2-ethylhexyl) phthalate	µg/kg	63	2 / 214 (0.93%)	1,200	NA	(NE)	NA	(NA)	0	(160,000)
Butylbenzylphthalate	µg/kg	63	1 / 214 (0.47%)	4,000	NA	(NE)	NA	(NA)	0	(1,200,000)
Di-n-butyl phthalate	µg/kg	63	1 / 214 (0.47%)	5,000	NA	(NE)	NA	(NA)	0	(82,000,000)
Volatile Organic Compounds										
1,2,4-Trimethylbenzene	µg/kg	68	1 / 174 (0.57%)	43	NA	(NE)	NA	(NA)	0	(1,800,000)
4-Isopropyltoluene	µg/kg	59	1 / 156 (0.64%)	75	NA	(NE)	NA	(NA)	0	(9,900,000)
Acetone	µg/kg	68	4 / 174 (2.3%)	2,200	NA	(NE)	NA	(NA)	0	(670,000,000)
Chloroform	µg/kg	68	2 / 174 (1.1%)	12	NA	(NE)	NA	(NA)	0	(1,400)
Isopropylbenzene	µg/kg	68	2 / 174 (1.1%)	25	NA	(NE)	NA	(NA)	0	(9,900,000)
Methyl acetate	µg/kg	19	4 / 39 (10%)	1,800	NA	(NE)	NA	(NA)	0	(130,000,000)
Methylene chloride	µg/kg	68	2 / 174 (1.1%)	5.7	NA	(NE)	NA	(NA)	0	(24,000)
N-Butylbenzene	µg/kg	68	1 / 174 (0.57%)	290	NA	(NE)	NA	(NA)	0	(6,400,000)
N-Propylbenzene	µg/kg	68	1 / 174 (0.57%)	110	NA	(NE)	NA	(NA)	0	(24,000,000)
sec-Butylbenzene	µg/kg	68	1 / 174 (0.57%)	82	NA	(NE)	NA	(NA)	0	(12,000,000)
Toluene	µg/kg	70	2 / 176 (1.1%)	5.9	NA	(NE)	NA	(NA)	0	(5,400,000)
Xylene, m,p-	µg/kg	68	1 / 174 (0.57%)	19	NA	(NE)	NA	(NA)	0	(2,500,000)
Xylenes, total	µg/kg	70	2 / 176 (1.1%)	27	NA	(NE)	NA	(NA)	0	(2,500,000)

TABLE 3-23j

Constituent Concentrations in Soil Compared to Screening Values
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences [4]	(BK)	# of Exceedences [5]	(ESL)	# of Exceedences [5]	(CSL)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	84	12 / 279 (4.3%)	1,100	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	87	26 / 286 (9.1%)	1,600	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	96	9 / 304 (3.0%)	150	NA	(NE)	NA	(NA)	0	(45,000,000)
Acenaphthylene	µg/kg	96	6 / 304 (2.0%)	2,000	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	96	27 / 304 (8.9%)	370	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	96	108 / 304 (36%)	1,700	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	96	91 / 304 (30%)	1,600	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	96	118 / 304 (39%)	3,600	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	96	83 / 304 (27%)	1,800	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	96	83 / 304 (27%)	930	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	96	108 / 304 (36%)	1,800	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	96	6 / 304 (2.0%)	46	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	96	132 / 304 (43%)	3,000	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	96	5 / 304 (1.6%)	28	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	96	73 / 304 (24%)	1,500	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	96	7 / 303 (2.3%)	190	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	96	75 / 304 (25%)	29,000	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	96	136 / 304 (45%)	28,000	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	96	157 / 304 (52%)	2,300	63	(55)	NA	(NA)	1	(2,100)
Polychlorinated biphenyls										
Aroclor 1242	µg/kg	84	1 / 279 (0.36%)	31	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	84	84 / 279 (30%)	2,600	NA	(NE)	NA	(NA)	4	(970)
Aroclor 1260	µg/kg	86	39 / 281 (14%)	920	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	86	98 / 281 (35%)	3,537	NA	(NE)	NA	(NA)	6	(940)
Pesticides										
4,4-DDE	µg/kg	17	1 / 20 (5.0%)	7.2	NA	(NE)	NA	(NA)	0	(9,300)
4,4-DDT	µg/kg	17	1 / 20 (5.0%)	6	NA	(NE)	NA	(NA)	0	(8,500)

TABLE 3-23j

Constituent Concentrations in Soil Compared to Screening Values
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
Parameter	**Units**	**Number of Locations**	**Frequency of Detection**	**Maximum Detected Value**	**# of Exceedences [4]**	**(BK)**	**# of Exceedences [5]**	**(ESL)**	**# of Exceedences [5]**	**(CSL)**
Total Petroleum Hydrocarbons										
Oil and Grease	mg/kg	6	17 / 18 (94%)	2,775	NA	(NE)	NA	(NA)	NA	(NE)
TPH as kerosene	mg/kg	7	7 / 7 (100%)	8,000	NA	(NE)	NA	(NA)	NA	(NE)
TPH-Diesel (C9-C25)	mg/kg	4	4 / 10 (40%)	62	NA	(NE)	NA	(NA)	NA	(NE)
TPH-Gasoline (C6-C12)	mg/kg	4	0 / 6 (0%)	ND (1.8)	NA	(NE)	NA	(NA)	NA	(NE)
TPH-Oil (C24-C40)	mg/kg	4	8 / 10 (80%)	88	NA	(NE)	NA	(NA)	NA	(NE)
TPH as diesel	mg/kg	102	116 / 303 (38%)	8,500	NA	(NE)	7	(230)	4	(1,100)
TPH as motor oil	mg/kg	102	198 / 303 (65%)	240,000	NA	(NE)	6	(11,000)	1	(140,000)
TPH as gasoline	mg/kg	100	1 / 250 (0.4%)	3.1	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-23j

Constituent Concentrations in Soil Compared to Screening Values
AOC 13 – Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-23k
Sample Results: Volatile Organic Compounds in Soil Gas
AOC 13 - Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

		Location	AOC13-5	AOC13-5	AOC13-6	AOC13-6	AOC13-11	AOC13-11	AOC13-16	AOC13-16
		Date	1/13/2016	2/10/2017	1/13/2016	2/10/2017	1/13/2016	2/11/2017	1/14/2016	2/11/2017
		Sample Type	N	N	N	N	N	N	N	N
		Depth (ft bgs)	2-3	2-3	2-3	2-3	2-3	2-3	5-6	5-6
Analyte [a] (µg/m^3)	Commercial/ Industrial Screening Level [b]	Proposed Commercial/ Industrial Screening Level [c]								
1,1,1 Trichloroethane	4,400,000	150000	4.1 U	3.66 U	3.9 U	4.15 U	3.96 U	3.66 U	4.83 U	3.66 U
1,1,2,2 Tetrachloroethane	210	7.0	5.14 U	4.6 U	4.9 U	5.21 U	4.97 U	4.6 U	6.07 U	4.6 U
1,1,2 Trichloroethane	770	26	4.1 U	3.66 U	3.9 U	4.15 U	3.96 U	3.66 U	4.83 U	3.66 U
1,1,2 Trichlorotrifluoroethane (Freon 113)	22,000,000	730000	5.74 U	5.13 U	5.48 U	5.82 U	5.55 U	5.13 U	6.78 U	5.13 U
1,1 Dichloroethane	7,700	260	3.03 U	2.71 U	2.89 U	3.07 U	2.93 U	2.71 U	3.58 U	2.71 U
1,1 Dichloroethene	310,000	10000	2.97 U	2.65 U	2.83 U	3.01 U	2.87 U	2.65 U	3.5 U	2.65 U
1,2,4 Trichlorobenzene	1,700	57	27.8 U	24.9 UJ	26.5 U	28.2 UJ	26.9 U	24.9 UJ	32.8 U	24.9 UJ
1,2,4 Trimethylbenzene	260,000	8700	3.69 U	3.3 U	3.52 U	3.74 U	3.57 U	3.3 U	4.35 U	3.3 U
1,2 Dibromoethane	20	0.67	5.76 U	5.15 U	5.49 U	5.84 U	5.57 U	5.15 U	6.8 U	5.15 U
1,2 Dichlorobenzene	880,000	29000	4.52 U	4.03 U	4.3 U	4.58 U	4.36 U	4.03 U	5.33 U	4.03 U
1,2 Dichloroethane	470	16	3.03 U	2.71 U	2.89 U	3.07 U	2.93 U	2.71 U	3.58 U	2.71 U
1,2 Dichloropropane	1,200	11	3.46 U	3.1 U	3.3 U	3.51 U	3.35 U	3.1 U	4.09 U	3.1 U
1,3,5 Trimethylbenzene	260,000	8700	3.69 U	3.3 U	3.52 U	3.74 U	3.57 U	3.3 U	4.35 U	3.3 U
1,3 Dichlorobenzene	--	--	4.52 U	4.03 U	4.3 U	4.58 U	4.36 U	4.03 U	5.33 U	4.03 U
1,4 Dichlorobenzene	1,100	37	4.52 U	4.03 U	4.3 U	4.58 U	4.36 U	4.03 U	5.33 U	4.03 U
2 Hexanone	130,000	4300	6.15 U	5.49 U	5.86 U	6.23 U	5.95 U	5.49 U	7.26 U	5.49 U
Acetone	140,000,000	4,700,000	**42.3**	**30.7**	**27.6**	**18.3**	**39.1**	**32.7**	**55.3**	**64.3**
Benzene	420	14	2.4 U	2.14 U	2.29 U	2.43 U	2.32 U	2.14 U	2.83 U	2.14 U
Bromodichloromethane	330	11	5.03 U	4.49 U	4.79 U	5.09 U	4.86 U	4.49 U	5.93 U	4.49 U
Bromoform	11,000	370	7.76 U	6.93 U	7.39 U	7.86 U	7.5 U	6.93 U	9.15 U	6.93 U
Bromomethane	22,000	730	2.91 U	2.6 U	2.77 U	2.95 U	2.81 U	2.6 U	3.43 U	2.6 U
Carbon disulfide	3,100,000	100,000	2.34 U	**4.47**	2.23 U	**5.06**	2.26 U	**4.38**	2.76 U	**4.51**
Carbon tetrachloride	290	10	4.73 U	4.22 U	4.5 U	4.79 U	4.57 U	4.22 U	5.58 U	4.22 U
Chloro methane	390,000	13000	1.54 U	1.38 U	1.47 U	1.57 U	1.49 U	1.38 U	1.82 U	1.38 U
Chlorobenzene	220,000	7,300	3.45 U	3.08 U	3.29 U	3.5 U	3.34 U	3.08 U	4.07 U	3.08 U
Chloroethane	44,000,000	1500000	1.98 U	1.77 U	1.89 U	2.01 U	1.91 U	1.77 U	2.34 U	1.77 U
Chloroform	530	18	3.66 U	**5.04**	3.49 U	3.71 U	3.54 U	3.27 U	4.32 U	3.27 U
cis 1,2 Dichloroethene	35,000	1200	2.97 U	2.65 U	2.83 U	3.01 U	2.87 U	2.65 U	3.5 U	2.65 U
cis 1,3 Dichloropropene	770	26	3.4 U	3.04 U	3.25 U	3.45 U	3.29 U	3.04 U	4.02 U	3.04 U
Dibromochloromethane	580	19	6.39 U	5.71 U	6.09 U	6.48 U	6.18 U	5.71 U	7.54 U	5.71 U
Dichlorodifluoromethane	440,000	15,000	3.7 U	3.31 U	3.53 U	3.75 U	3.58 U	3.31 U	4.37 U	3.31 U

TABLE 3-23k
Sample Results: Volatile Organic Compounds in Soil Gas
AOC 13 - Unpaved Areas within the Compressor Station
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

		Location	AOC13-5	AOC13-5	AOC13-6	AOC13-6	AOC13-11	AOC13-11	AOC13-16	AOC13-16
		Date	1/13/2016	2/10/2017	1/13/2016	2/10/2017	1/13/2016	2/11/2017	1/14/2016	2/11/2017
		Sample Type	N	N	N	N	N	N	N	N
		Depth (ft bgs)	2-3	2-3	2-3	2-3	2-3	2-3	5-6	5-6
Analyte [a] (µg/m^3)	Commercial/ Industrial Screening Level [b]	Proposed Commercial/ Industrial Screening Level [c]								
Ethyl benzene	4,900	160	3.26 U	2.91 U	3.1 U	3.3 U	3.15 U	2.91 U	3.84 U	2.91 U
Hexachlorobutadiene	560	19	16 U	14.3 U	15.3 U	16.2 U	15.5 U	14.3 U	18.9 U	14.3 U
Methyl ethyl ketone	22,000,000	730000	**6.15**	**6.09**	4.22 U	4.48 U	**5.05**	**13.1**	**7.1**	**11.2**
Methyl isobutyl ketone	13,000,000	430000	6.15 U	5.49 U	5.86 U	6.23 U	5.95 U	5.49 U	7.26 U	5.49 U
Methyl tert butyl ether (MTBE)	47,000	1600	10.8 U	9.66 U	10.3 U	11 U	10.5 U	9.66 U	12.8 U	9.66 U
Methylene chloride	12,000	400	5.21 U	4.65 U	4.97 U	5.27 U	5.04 U	4.65 U	6.15 U	**8.84**
Styrene	3,900,000	130,000	3.2 U	2.85 U	3.05 U	3.24 U	3.09 U	2.85 U	3.77 U	2.85 U
Tetrachloroethene	2,000	67	5.08 U	**8.18**	4.85 U	5.15 U	4.92 U	4.54 U	6 U	4.54 U
Toluene	1,300,000	43,000	**15.3**	2.52 U	**6.68**	2.86 U	**9.34**	2.52 U	**16**	2.52 U
trans 1,2 Dichloroethene	350,000	12000	2.97 U	2.65 U	2.83 U	3.01 U	2.87 U	2.65 U	3.5 U	2.65 U
trans 1,3 Dichloropropene	770	26	3.4 U	3.04 U	3.25 U	3.45 U	3.29 U	3.04 U	4.02 U	3.04 U
Trichloroethene	3,000	100	4.04 U	3.6 U	3.85 U	4.09 U	3.9 U	3.6 U	4.76 U	3.6 U
Trichlorofluoromethane (Freon 11)	5,300,000	180000	4.22 U	3.77 U	4.02 U	4.27 U	4.07 U	3.77 U	4.97 U	3.77 U
Vinyl chloride	160	5.3	1.92 U	1.72 U	1.83 U	1.95 U	1.86 U	1.72 U	2.27 U	1.72 U
Xylene, m,p	440,000	15000	6.51 U	5.82 U	6.21 U	6.6 U	6.29 U	5.82 U	7.68 U	5.82 U
Xylene, o	440,000	15000	3.26 U	2.91 U	3.1 U	3.3 U	3.15 U	2.91 U	3.84 U	2.91 U

Notes:
µg/m^3 = micrograms per cubic meter
DTSC = California Department of Toxic Substances Control
ft bgs = feet below ground surface
J = concentration or reporting limit estimated by laboratory or data validation
N = primary sample
U = not detected at the listed reporting limit
UJ = not detected, listed reporting limit estimated by laboratory or data validation
[a] All data presented are Category 1 data
[b] Soil gas screening levels (µg/m^3) calculated using 2011 DTSC attenuation factors and DTSC 2018 recommended screening levels
[c] Soil gas screening levels (µg/m^3) calculated using 2023 DTSC draft AFs and DTSC 2018 recommended SLs

Sources:
DTSC, 2011. Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.
DTSC, 2018. Human Health Risk Assessment (HHRA) Note 3, DTSC-modified Screening Levels (DTSC-SLs). June.
DTSC and California Water Resources Control Boards, 2023. Supplemental Guidance: Screening and Evaluating Vapor Intrusion, Final Draft. February.
Available online: https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/02/VI_SupGuid_Screening-Evaluating.pdf

TABLE 3-24a
Sample Results: Metals
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
		Commercial Screening Level [1]:		**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
		Background [2]:		**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC15-1	01/22/16 §	0 - 0.5	N	ND (2.2)	5.3	140	ND (1.1)	ND (1.1)	**43**	**590**	5.9	**17**	**33**	ND (0.11)	**900**	14	ND (1.1)	ND (1.1)	ND (2.2)	23	53
	01/22/16	2 - 3	N	ND (2.2)	4.1	210	ND (1.1)	ND (1.1)	**3.4**	38	6.7	11	2.6	ND (0.11)	**190**	16	ND (1.1)	ND (1.1)	ND (2.2)	26	30
	01/19/17	5 - 6	N	ND (2.1)	2.6	58	ND (1)	ND (1)	**1.1**	33	5.6	7.2	1.7	ND (0.1)	**83**	16	ND (1) J	ND (1)	ND (2.1)	23	19
	01/20/17	9 - 10	N	ND (2)	2.5	52	ND (1)	ND (1)	**1.3**	14	1.2	ND (2)	1.5	ND (0.1)	**4.5**	1.7	ND (1) J	ND (1)	ND (2)	8.1	6.7
	01/20/17	14 - 15	N	ND (2)	2.6	76	ND (1)	ND (1)	**1.1**	26	2.1	2.9	2.7	ND (0.1)	**65**	3.4	ND (1) J	ND (1)	ND (2)	12	12
AOC15-2	01/22/16 §	0 - 0.5	N	ND (2.1)	5	100	ND (1)	ND (1)	**80**	**950**	6	**28**	**67**	ND (0.11)	**780**	15	ND (1)	ND (1)	ND (2.1)	22	**59**
	01/22/16 §	2 - 3	N	ND (2.2)	3.5	95	ND (1.1)	ND (1.1)	**4.2**	**64**	6.2	**25**	7.3	ND (0.11)	**22**	15	ND (1.1)	ND (1.1)	ND (2.2)	24	32
AOC15-3	01/22/16 §	0 - 0.5	N	ND (2)	4.1	170	ND (1)	ND (1)	**8.4**	**100**	3.1	**42**	**280**	ND (0.1)	**22**	7.6	ND (1)	ND (1)	ND (2)	13	**120**
	01/22/16 §	2 - 3	N	ND (2.1)	3.6	99 J	ND (1)	ND (1)	ND (0.21)	8.2 J	2.8	4	2.7	ND (0.1)	ND (1)	5.1 J	ND (1)	ND (1)	ND (2.1)	14	14
	01/22/16 §	2 - 3	FD	ND (2.1)	3.3	76 J	ND (1)	ND (1)	0.34	15 J	3	5.1	2.8	ND (0.1)	ND (1)	7 J	ND (1)	ND (1)	ND (2.1)	15	14
AOC15-4	01/22/16 §	0 - 0.5	N	ND (2.1)	6.9	140	ND (1.1)	ND (1.1)	**10**	**220**	6.3	**33**	**42**	ND (0.11)	**84**	17	ND (1.1)	ND (1.1)	ND (2.1)	34	51
	01/22/16	2 - 3	N	ND (2.2)	4.9	110	ND (1.1)	ND (1.1)	**1.5**	**70**	9	16	5.1	ND (0.11)	**34**	26	ND (1.1)	ND (1.1)	ND (2.2)	37	37
AOC15-5	01/22/16 §	0 - 0.5	N	ND (2.1)	3.9	150	ND (1)	ND (1)	**18**	**490**	7.4	**17 J**	**35 J**	ND (0.11)	**500 J**	20	ND (1)	ND (1)	ND (2.1)	33	54
	01/22/16 §	0 - 0.5	FD	ND (2.1)	3.6	150	ND (1)	ND (1)	**19**	**530**	7.7	**23 J**	**17 J**	ND (0.11)	**400 J**	19	ND (1)	ND (1)	ND (2.1)	33	56
	01/22/16 §	2 - 3	N	ND (2.1)	3.2	97	ND (1.1)	ND (1.1)	**1.3**	28	4.1	7.2	2.8	ND (0.1)	**7.9**	9.6	ND (1.1)	ND (1.1)	ND (2.1)	21	18
AOC15-6	01/22/16 §	0 - 0.5	N	ND (2)	3.7	97	ND (1)	ND (1)	**1.7 J**	17 J	3	12	**32 J**	ND (0.1)	ND (1)	5.1	ND (1)	ND (1)	ND (2)	15	23
	01/22/16 §	0 - 0.5	FD	ND (2)	3.2	100	ND (1)	ND (1)	**5.6 J**	22 J	2.4	9.4	**48 J**	ND (0.1)	**4**	4.6	ND (1)	ND (1)	ND (2)	14	25
	01/22/16 §	2 - 3	N	ND (2.1)	3.3	91	ND (1.1)	ND (1.1)	0.33	11	2.5	5	4.5	ND (0.11)	ND (1.1)	4.5	ND (1.1)	ND (1.1)	ND (2.1)	14	14
AOC15-7	01/22/16	0 - 0.5	N	ND (2.1) J	3.3	69 J	ND (1)	ND (1)	0.31 J	9.1 J	2.5	6.2 J	**15 J**	ND (0.1)	1.3 J	4.6	ND (1)	ND (1)	ND (2.1)	13	18 J
	01/22/16	0 - 0.5	FD	ND (2.1)	4	110 J	ND (1)	ND (1)	**2.3 J**	31 J	3	**18 J**	**87 J**	ND (0.1)	**9.9 J**	7	ND (1)	ND (1)	ND (2.1)	15	48 J
	01/22/16	2 - 3	N	ND (2.1)	2.9	52	ND (1)	ND (1)	ND (0.21)	5.4	2	3	2.2	ND (0.11)	ND (1)	3.8	ND (1)	ND (1)	ND (2.1)	11	9.9
AOC15-OS1	12/05/13 §	0 - 0.5	N	ND (2.1)	3.4	120	ND (1)	ND (1)	**69**	**1,700**	4.8	**41**	**200**	ND (0.1)	**1,300**	15	ND (1)	ND (1)	ND (2.1)	26	**100**
	12/05/13	2 - 3	N	ND (2.2)	3.7	140	ND (1.1)	ND (1.1)	**23**	**480**	6.3	**20**	**33**	ND (0.11)	**450**	17	ND (1.1)	ND (1.1)	ND (2.2)	33	49
AOC15-OS10	08/09/20	3 - 3.5	N	ND (0.33)	2	47	ND (0.22)	ND (0.27)	0.57	5.3	1.8	2.8	**9.2**	ND (0.027)	**2.6**	3.3	ND (0.6)	ND (0.62)	0.82 J	8.2	11
	08/09/20	5 - 6	N	ND (0.33)	1.7	56	ND (0.22)	ND (0.27)	ND (0.059)	3.4	1.4	1.5 J	1.9	ND (0.027)	ND (0.3)	2.1	ND (0.6)	ND (0.63)	0.78 J	8.6	9.5
AOC15-OS2	12/05/13 §	0 - 0.5	N	ND (2.1)	3.7	93	ND (1)	ND (1)	**170**	**1,600**	4.7	**24**	**52**	ND (0.1)	**1,000**	14	ND (1)	ND (1)	ND (2.1)	24	**65**
	12/05/13 §	2 - 3	N	ND (2.2)	3.3	130	ND (1.1)	ND (1.1)	**34**	**430**	5	**19**	**220**	ND (0.11)	**350**	14	ND (1.1)	ND (1.1)	ND (2.2)	27	46
AOC15-OS5	12/05/13 §	0 - 0.5	N	ND (2.1)	3.4	72	ND (1)	ND (1)	**22**	**100**	3.3	**21**	**47**	ND (0.1)	**590**	8	ND (1)	ND (1)	ND (2.1)	24	37
	12/05/13	2 - 3	N	ND (2.2)	4.1	170	ND (1.1)	ND (1.1)	**13**	**110**	7.4	16	**12**	ND (0.11)	**76**	19	ND (1.1)	ND (1.1)	ND (2.2)	33	35
AOC15-OS6	08/09/20	2 - 2.5	N	ND (0.33)	2.4	65	ND (0.22)	ND (0.27)	**5.8**	**55**	4.1	6.5	6.3	ND (0.027)	**91**	15	ND (0.61)	ND (0.63)	0.75 J	15	18
	08/09/20	4 - 5	N	ND (0.34)	2.4	49	ND (0.22)	ND (0.27)	**1.2**	16	2	3.8	3.6	ND (0.027)	**19**	3.7	ND (0.61)	ND (0.63)	0.73 J	8.3	9.7
AOC15-OS7	08/09/20	0.5 - 1	N	ND (0.33)	3.2	97	ND (0.22)	0.31 J	**17**	**140**	3.9	**36**	**83**	ND (0.027)	**110**	9.4	ND (0.6)	ND (0.63)	0.81 J	16	55
	08/09/20	2.5 - 3.5	N	ND (0.33)	2.7	45	ND (0.22)	ND (0.27)	**1.1**	15	2	3.8	**8.4**	ND (0.027)	**9**	3.8	ND (0.61)	ND (0.63)	0.62 J	9.4	12
AOC15-OS8	08/09/20	0.5 - 1	N	ND (0.33)	3	98	ND (0.22)	0.64 J	**65**	**300**	4.2	**110**	**580**	0.05 J	**61**	9.4	ND (0.6)	ND (0.63)	0.89 J	14	**160**
	08/09/20	2.5 - 3.5	N	ND (0.34)	2.6	54	ND (0.22)	ND (0.27)	**2**	15	2.7	5.2	**20**	ND (0.027)	**2.3**	5.3	ND (0.61)	ND (0.63)	0.75 J	12	16
AOC15-OS9	08/09/20	2 - 2.5	N	ND (0.33)	2.2	55	ND (0.22)	ND (0.27)	**1.4**	20	3.9	9.9	**30**	ND (0.027)	**60**	13	ND (0.6)	ND (0.63)	0.87 J	13	25
	08/09/20	4 - 5	N	ND (0.33)	2.3	61	ND (0.22)	ND (0.27)	**1.4**	10	2.3	5.4	**15**	ND (0.027)	**17**	4.9	ND (0.6)	ND (0.63)	0.74 J	11	14
JP-1-S	04/24/97 §	0	N	---	---	---	---	---	**1.2**	**81**	---	---	**28**	---	**300**	---	---	---	---	---	39

TABLE 3-24a
Sample Results: Metals
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
JP-1-3	04/25/97	3	N	---	---	---	---	---	**8.3 J**	**72**	---	---	6	---	**310**	---	---	---	---	---	44
JP-1-4.5	04/25/97	4.5	N	---	---	---	---	---	**3.4**	35	---	---	4.4	---	**52**	---	---	---	---	---	20
JP-2-S	04/24/97 §	0	N	---	---	---	---	---	**53**	**2,100**	---	---	**820**	---	**720**	---	---	---	---	---	**180**
JP-2-3	04/25/97 §	3	N	---	---	---	---	---	**1.4**	**41**	---	---	5.4	---	**24**	---	---	---	---	---	57
JP-3-S	04/24/97 §	0	N	---	---	---	---	---	**16**	**330**	---	---	**200**	---	**710**	---	---	---	---	---	**150**
JP-4-S	04/24/97 §	0	N	---	---	---	---	---	**3.8**	**86**	---	---	**60**	---	**330**	---	---	---	---	---	**94**
JP-5-S	04/24/97 §	0	N	---	---	---	---	---	**10**	**89**	---	---	**28**	---	**260**	---	---	---	---	---	49
JP-6-S	04/24/97 §	0	N	---	---	---	---	---	**12**	**730**	---	---	**52**	---	**210**	---	---	---	---	---	**180**
JP-7-S	04/24/97 §	0	N	---	---	---	---	---	0.47	**270**	---	---	**28**	---	**25**	---	---	---	---	---	**100**
JP-8-S	11/13/98 §	0	N	---	---	---	---	---	**5.9**	**920**	---	**316**	---	---	---	16.6	---	---	---	---	**133**
JP-8-3	11/13/98 §	3	N	---	---	---	---	---	**3.5**	**48.1**	---	9.4	---	---	---	12.2	---	---	---	---	28.4
JP-9-S	11/13/98 §	0	N	---	---	---	---	---	**13.7**	**1,340**	---	**40.2**	---	---	---	12	---	---	---	---	**158**
JP-9-3	11/13/98	3	N	---	---	---	---	---	**4**	**135**	---	**27.1**	---	---	---	17	---	---	---	---	42.7
JP-10-S	11/13/98 §	0	N	---	---	---	---	---	**32.3**	**930**	---	**33.5**	---	---	---	11.8	---	---	---	---	53.4
JP-10-2	11/13/98	2	N	---	---	---	---	---	**2.5**	**117**	---	**22.3**	---	---	---	19.6	---	---	---	---	46.9
JP-10-3	11/13/98	3	N	---	---	---	---	---	0.8	25.7	---	7.6	---	---	---	6.1	---	---	---	---	42.3

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-24b

Sample Results: Contract Laboratory Program Inorganics
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1] :	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2] :	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC15-1	01/19/17	5 - 6	N	6,100	20,000	13,000	5,900	160	1,500 J	660 J	---
AOC15-6	01/22/16 §	0 - 0.5	N	3,700 J	22,000 J	7,300	3,500	140	810 J	230	ND (0.207)
	01/22/16 §	0 - 0.5	FD	2,900 J	16,000 J	6,200	3,300	120	600 J	190	ND (0.207)
	01/22/16 §	2 - 3	N	3,600	21,000	6,500	3,500	120	750	260	ND (0.212)
AOC15-7	01/22/16	0 - 0.5	N	3,300	18,000	6,300	3,500	120	660	140	ND (0.208)
	01/22/16	0 - 0.5	FD	3,900	19,000	7,600	3,600	130	720	160	ND (0.208)
	01/22/16	2 - 3	N	2,200	17,000	5,100	2,900	110	440	150	ND (0.209)

TABLE 3-24b

Sample Results: Contract Laboratory Program Inorganics
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

§	Sample removed during 2020 excavation
J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-24c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
			Commercial Screening Level[1]:	**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
			Background[2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC15-1	01/22/16 §	0 - 0.5	N	26 R	26 R	26 R	26 R	26 R	58 J	26 R	26 R	26 R	26 R	26 R	26 R	26 R	26 R	26 R	26 R	26 R	26 R	35 JR
	01/22/16	2 - 3	N	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	5.5 R	6.4 R
	01/19/17	5 - 6	N	---	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (390)
AOC15-6	01/22/16 §	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	19	23	40 J	10	15	25	ND (5.2)	40	ND (5.2)	10	ND (5.2)	12	39	33
	01/22/16 §	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	32	40	71 J	14	22	39	ND (5.1)	65	ND (5.1)	14	ND (5.1)	21	64	55
	01/22/16 §	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC15-7	01/22/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	18	26	49	13	14	24	ND (5.2)	35	ND (5.2)	13	ND (5.2)	10	36	37
	01/22/16	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	17	26	48	11	17	24	ND (5.2)	33	ND (5.2)	11	ND (5.2)	9	34	36
	01/22/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-24d

Sample Results: General Chemistry Parameters
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)	(PERC)
Comercial Regional Screening Levels [1]:				**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**
Background [3]:				**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**	**Total dissolved solids**
Category 1					
AOC15-1	01/22/16 §	0 - 0.5	N	9.5	---
	01/22/16	2 - 3	N	9.2	---
AOC15-2	01/22/16 §	0 - 0.5	N	9.9	---
	01/22/16 §	2 - 3	N	9.9	---
AOC15-3	01/22/16 §	0 - 0.5	N	8.5	---
	01/22/16 §	2 - 3	N	9.5	---
	01/22/16 §	2 - 3	FD	9.5	---
AOC15-4	01/22/16 §	0 - 0.5	N	9.5	---
	01/22/16	2 - 3	N	9.8	---
AOC15-5	01/22/16 §	0 - 0.5	N	9	---
	01/22/16 §	0 - 0.5	FD	9.1	---
	01/22/16 §	2 - 3	N	10	---
AOC15-6	01/22/16 §	0 - 0.5	N	9.3	---
	01/22/16 §	0 - 0.5	FD	9.3	---
	01/22/16 §	2 - 3	N	9.7	---
AOC15-7	01/22/16	0 - 0.5	N	9.2	---
	01/22/16	0 - 0.5	FD	9.1	---
	01/22/16	2 - 3	N	9.4	---
AOC15-OS1	12/05/13 §	0 - 0.5	N	9.9	---
	12/05/13	2 - 3	N	9.7	---
AOC15-OS2	12/05/13 §	0 - 0.5	N	9.8	---
	12/05/13 §	2 - 3	N	9.5	---
AOC15-OS5	12/05/13 §	0 - 0.5	N	10	---
	12/05/13	2 - 3	N	9.9	---
JP-1-S	04/24/97 §	0	N	---	92
JP-1-3	04/25/97	3	N	---	91
JP-1-4.5	04/25/97	4.5	N	---	94
JP-2-S	04/24/97 §	0	N	---	97
JP-2-3	04/25/97 §	3	N	---	93
JP-3-S	04/24/97 §	0	N	---	99
JP-4-S	04/24/97 §	0	N	---	99
JP-5-S	04/24/97 §	0	N	---	89
JP-6-S	04/24/97 §	0	N	---	90
JP-7-S	04/24/97 §	0	N	---	96
JP-8-S	11/13/98 §	0	N	8.62	---
JP-8-3	11/13/98 §	3	N	9.51	---
JP-9-S	11/13/98 §	0	N	9.27	---
JP-9-3	11/13/98	3	N	9.44	---

TABLE 3-24d

Sample Results: General Chemistry Parameters
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)	General Chemistry (PERC)
Comercial Regional Screening Levels [1]:				**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**
Background [3]:				**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**	**Total dissolved solids**
JP-10-S	11/13/98 §	0	N	9.16	---
JP-10-2	11/13/98	2	N	9.36	---
JP-10-3	11/13/98	3	N	8.7	---

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-24e

Sample Results: Pesticides
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
			Commercial Screening Level [1]:	9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC15-1	01/19/17	5 - 6	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-24f

Sample Results: Polychlorinated Biphenyls
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1]:	27,000	830	720	950	950	970	990	970	970	940
			Background[2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
Category 1													
AOC15-1	01/22/16 §	0 - 0.5	N	17 R	35 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
	01/22/16	2 - 3	N	18 R	36 R	18 R	18 R	18 R	18 R	18 R	---	---	36 R
AOC15-6	01/22/16 §	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/22/16 §	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/22/16 §	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC15-7	01/22/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/22/16	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	39	ND (17)	ND (17)	ND (17)	64.5
	01/22/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

§	Sample removed during 2020 excavation
*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

TABLE 3-24f

Sample Results: Polychlorinated Biphenyls
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-24g
Constituent Concentrations in Soil Compared to Screening Values
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Metals										
Antimony	mg/kg	10	0 / 19 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	10	19 / 19 (100%)	4.9	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	10	19 / 19 (100%)	210	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	10	0 / 19 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	10	2 / 19 (11%)	0.64	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	15	22 / 24 (92%)	65	20	(0.83)	NA	(NA)	5	(6.3)
Chromium, total	mg/kg	15	24 / 24 (100%)	480	9	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	10	19 / 19 (100%)	9	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	13	21 / 22 (95%)	110	5	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	12	21 / 21 (100%)	580	10	(8.39)	NA	(NA)	1	(320)
Mercury	mg/kg	10	1 / 19 (5.3%)	0.05	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	12	19 / 21 (90%)	450	19	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	13	22 / 22 (100%)	26	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	10	0 / 19 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	10	0 / 19 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	10	10 / 19 (53%)	0.89	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	10	19 / 19 (100%)	37	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	15	24 / 24 (100%)	160	1	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	3 / 3 (100%)	6,100	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	3 / 3 (100%)	20,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	2	3 / 3 (100%)	13,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	3 / 3 (100%)	5,900	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	2	3 / 3 (100%)	160	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	2	3 / 3 (100%)	1,500	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	2	3 / 3 (100%)	660	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.209)	NA	(NE)	NA	(NA)	0	(150)

TABLE 3-24g

Constituent Concentrations in Soil Compared to Screening Values
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	2	1 / 3 (33%)	5.5	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(45,000,000)
Acenaphthylene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	2	2 / 4 (50%)	18	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	2	2 / 4 (50%)	26	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	2	2 / 4 (50%)	49	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	2	2 / 4 (50%)	13	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	2	2 / 4 (50%)	17	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	2	2 / 4 (50%)	24	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	2	2 / 4 (50%)	35	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	2	2 / 4 (50%)	13	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	2	1 / 4 (25%)	5.5	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	2	2 / 4 (50%)	9	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	2	2 / 4 (50%)	36	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	2	2 / 4 (50%)	37	0	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	2	1 / 3 (33%)	18	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	2	1 / 3 (33%)	36	NA	(NE)	NA	(NA)	0	(830)
Aroclor 1232	µg/kg	2	1 / 3 (33%)	18	NA	(NE)	NA	(NA)	0	(720)
Aroclor 1242	µg/kg	2	1 / 3 (33%)	18	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1248	µg/kg	2	1 / 3 (33%)	18	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	2	2 / 3 (67%)	39	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	2	1 / 3 (33%)	18	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	2	2 / 3 (67%)	64.5	NA	(NE)	NA	(NA)	0	(940)

TABLE 3-24g

Constituent Concentrations in Soil Compared to Screening Values
AOC 15 – Auxiliary Jacket Cooling Water Pumps
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-25a
Sample Results: Metals
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC16-1	01/11/16	0 - 0.5	N	ND (2.1)	4.5	57	ND (1)	ND (1)	---	12	5.3	13	4.2	0.12	ND (1)	12	ND (1)	ND (1)	ND (2.1)	19	21
	01/11/16	2 - 3	N	ND (2.1)	3.4	130	ND (1)	ND (1)	---	17	6.1	**21**	5	0.17	ND (1)	13	ND (1)	ND (1)	ND (2.1)	25	32
AOC16-2	01/11/16	0 - 0.5	N	ND (2.1)	3	94	ND (1)	ND (1)	---	22	6.8	**31**	8.1	0.1	**2.1**	16	ND (1)	ND (1)	ND (2.1)	22	**62**
	01/11/16	2 - 3	N	ND (2.2)	3.3	240	ND (1.1)	ND (1.1)	---	29	9.3	**21**	3.3	0.16	ND (1.1)	25	ND (1.1)	ND (1.1)	ND (2.2)	37	31
AOC16-3	01/11/16	0 - 0.5	N	ND (2.1)	3.4	85 J	ND (1)	ND (1)	---	15	5.5	**98**	6.5	0.12	**3.6**	13	ND (1)	ND (1)	ND (2.1)	17	38
	01/11/16	2 - 3	N	ND (2.2)	3.7	130	ND (1.1)	ND (1.1)	---	22	6.4	16	6.6	0.22	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2)	26	45
AOC16-4	01/11/16	0 - 1	N	ND (2.1)	2.4	65	ND (1)	ND (1)	---	15	6.1	12	6.9	0.14	ND (1)	13	ND (1)	ND (1)	ND (2.1)	21	27
AOC16-grit	01/05/17	0 - 0.5	N	ND (2)	**12**	130	ND (1)	**2.4**	---	38	**21**	**1,500**	**19**	ND (0.1)	**79**	13	ND (1) J	ND (1)	ND (2) J	28	**190**
AOC2A	02/20/03	0.4	N	---	---	---	---	---	ND (4.2)	26.1	---	10.2	---	---	---	12.4	---	---	---	---	**367**
AOC2B	02/20/03	0.4	N	---	---	---	---	---	ND (3.8)	17.3	---	11.2	---	---	---	17	---	---	---	---	23.9

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-25b

Sample Results: Contract Laboratory Program Inorganics
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC16-1	01/11/16	0 - 0.5	N	5,800	9,800	11,000	4,800	150	1,200 J	120 J	ND (0.207) J
	01/11/16	2 - 3	N	7,200	20,000	14,000	6,300	220	1,800	350	ND (0.208) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-25c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC16-grit	01/05/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	18	19	44	10	10	22	ND (5.1)	45	ND (5.1)	10	ND (5.1)	20	37	29

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-25d

Sample Results: General Chemistry Parameters
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	pH
Category 1				
AOC2A	02/20/03	0.4	N	9.6
AOC2B	02/20/03	0.4	N	8.2

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-25e

Sample Results: Polychlorinated Biphenyls
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Commercial Screening Level [1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**940**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
AOC16-grit	01/05/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-25f

Sample Results: Dioxins and Furans
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
AOC16-4	01/11/16	0 - 1	N	29 J	2.8 J	ND (0.44) J	ND (0.77) J	ND (0.41) J	ND (1.1) J	ND (0.71) J	ND (0.43) J	ND (0.2) J	ND (0.85) J	0.41 J	ND (3) J	0.64 J	ND (0.24) J	1.1 J	220 J	ND (3.3) J	1.6

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-25g

Constituent Concentrations in Soil Compared to Screening Values
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL) [2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Dioxins and Furans										
TEQ Human	ng/kg	1	1 / 1 (100%)	1.6	0	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	5	0 / 8 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	5	8 / 8 (100%)	12	1	(11)	NA	(NA)	1	(0.36) *
Barium	mg/kg	5	8 / 8 (100%)	240	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	5	0 / 8 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	5	1 / 8 (13%)	2.4	1	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	2	0 / 2 (0%)	ND (4.2) ‡	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	7	10 / 10 (100%)	38	0	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	5	8 / 8 (100%)	21	1	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	7	10 / 10 (100%)	1,500	5	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	5	8 / 8 (100%)	19	1	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	5	7 / 8 (88%)	0.22	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	5	3 / 8 (38%)	79	3	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	7	10 / 10 (100%)	25	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	5	0 / 8 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	5	0 / 8 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	5	0 / 8 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	5	8 / 8 (100%)	37	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	7	10 / 10 (100%)	367	3	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	2 / 2 (100%)	7,200	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	2 / 2 (100%)	20,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	2 / 2 (100%)	14,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	2 / 2 (100%)	6,300	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	2 / 2 (100%)	220	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	2 / 2 (100%)	1,800	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-25g
Constituent Concentrations in Soil Compared to Screening Values
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	1	2 / 2 (100%)	350	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.208)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	1	1 / 1 (100%)	18	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	1	1 / 1 (100%)	19	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	1	1 / 1 (100%)	44	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	1	1 / 1 (100%)	10	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	1	1 / 1 (100%)	10	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	1	1 / 1 (100%)	22	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	1	1 / 1 (100%)	45	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	1	1 / 1 (100%)	10	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	1	1 / 1 (100%)	20	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	1	1 / 1 (100%)	37	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	1	1 / 1 (100%)	29	0	(55)	NA	(NA)	0	(2,100)

TABLE 3-25g

Constituent Concentrations in Soil Compared to Screening Values
AOC 16 – Sandblast Shelter
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-26a
Sample Results: Metals
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC17-1	12/06/15	0 - 1	N	ND (2.1)	2.1	63	ND (1.1)	ND (1.1)	0.49	17	5.3	11	**22**	ND (0.11)	ND (1.1)	9.5	ND (1.1)	ND (1.1)	ND (2.1)	26	39
	12/06/15	0 - 1	FD	ND (2.1)	2.2	67	ND (1.1)	ND (1.1)	0.46	20	4.9	9.4	**23**	ND (0.11)	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.1)	26	42
	12/06/15	2 - 3	N	ND (2.2)	3.8	91	ND (1.1)	ND (1.1)	ND (0.22)	16	5.6	9.3	3.6	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2)	27	37
	12/06/15	5 - 6	N	ND (2.3)	4.1	120	ND (1.1)	ND (1.1)	ND (0.22)	16	6.6	9.8	3.3	ND (0.11)	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.3)	31	35
	12/06/15	9 - 10	N	ND (2.1)	2.4	78	ND (1)	ND (1)	ND (0.21)	7.3	2.7	3.9	2.2	ND (0.1)	ND (1)	5.8	ND (1)	ND (1)	ND (2.1)	14	13
AOC17-2	12/06/15	0 - 1	N	ND (2.2)	3.2	130	ND (1.1)	ND (1.1)	ND (0.22)	13	3.9	7.9	5.1	ND (0.11)	ND (1.1)	7.9	ND (1.1)	ND (1.1)	ND (2.2)	21	23
	12/06/15	2 - 3	N	ND (2.3)	2.6	80	ND (1.1)	ND (1.1)	ND (0.23)	16	5.3	7.5	4.1	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.3)	24	28
	12/06/15	5 - 6	N	ND (2.1)	2.6	83	ND (1)	ND (1)	ND (0.21)	4.3	1.6	2.2	1.9	ND (0.1)	ND (1)	2.9	ND (1)	ND (1)	ND (2.1)	12	9.7
	12/06/15	9 - 10	N	ND (2.1)	2.3	110	ND (1)	ND (1)	ND (0.21)	6	2.1	2.5	1.8	ND (0.1)	ND (1)	3.3	ND (1)	ND (1)	ND (2.1)	14	9.8
AOC17-3	12/06/15	0 - 1	N	ND (2.2)	2.4	120 J	ND (1.1)	ND (1.1)	0.28	16	4.1	13	**13 J**	ND (0.11)	ND (1.1)	7.4 J	ND (1.1)	ND (1.1)	ND (2.2)	18 J	58 J
	12/06/15	0 - 1	FD	ND (2.3)	2.5	80 J	ND (1.1)	ND (1.1)	0.25	16	5.4	8.5	6.8 J	ND (0.11)	ND (1.1)	11 J	ND (1.1)	ND (1.1)	ND (2.3)	23 J	24 J
	12/06/15	2 - 3	N	ND (2.2)	4.3	87	ND (1.1)	ND (1.1)	ND (0.22)	12	4.4	8.5	2.9	ND (0.11)	ND (1.1)	9.1	ND (1.1)	ND (1.1)	ND (2.2)	26	28
	12/06/15	5 - 6	N	ND (2.1)	2.3	51	ND (1.1)	**1.6**	ND (0.21)	11	2.7	3.2	1.7	ND (0.11)	ND (1.1)	5.7	ND (1.1)	ND (1.1)	ND (2.1)	13	**71**
	12/06/15	9 - 10	N	ND (2.1)	2.2	53	ND (1.1)	1.1	ND (0.21)	5.4	2	2.6	1.7	ND (0.1)	ND (1.1)	4.3	ND (1.1)	ND (1.1)	ND (2.1)	12	29
AOC17-4	12/06/15	0 - 1	N	ND (2.1)	2.3	100	ND (1.1)	ND (1.1)	0.32	17	4.6	11	6.3	ND (0.11)	ND (1.1)	9	ND (1.1)	ND (1.1)	ND (2.1)	23	30
	12/06/15	2 - 3	N	ND (2.2)	2.1	58	ND (1.1)	ND (1.1)	ND (0.22)	20	6.3	7.9	2	ND (0.11)	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2)	29	32
	12/06/15	5 - 6	N	ND (2.2)	2.4	170	ND (1.1)	**2.3**	0.25	8	3.3	6.3	1.8	ND (0.11)	ND (1.1)	5.1	ND (1.1)	ND (1.1)	ND (2.2)	17	42
AOC17-5	12/06/15	0 - 1	N	ND (2.1)	2.4	74	ND (1.1)	ND (1.1)	0.41	15	4.4	11	**24**	ND (0.11)	ND (1.1)	7.8	ND (1.1)	ND (1.1)	ND (2.1)	22	33
	12/06/15	2 - 3	N	ND (2.2)	2.1	110 J	ND (1.1)	ND (1.1)	ND (0.22)	19	4.7	7.5	3.1	ND (0.11)	ND (1.1)	9.5	ND (1.1)	ND (1.1)	ND (2.2)	23	28 J
	12/06/15	2 - 3	FD	ND (2.2) J	3.2	230 J	ND (1.1)	ND (1.1) J	ND (0.22)	16	5.5	9.4	3.3	ND (0.11)	ND (1.1)	11	ND (1.1) J	ND (1.1)	ND (2.2) J	28	36 J
	12/06/15	5 - 6	N	ND (2.1)	2.8	87	ND (1.1)	ND (1.1)	ND (0.21)	14	3.9	7.2	2.6	ND (0.11)	ND (1.1)	9.6	ND (1.1)	ND (1.1)	ND (2.1)	18	19
	12/06/15	9 - 10	N	ND (2.1)	2.5	51	ND (1)	ND (1)	ND (0.21)	6.4	2.4	3.3	2	ND (0.1)	ND (1)	5.2	ND (1)	ND (1)	ND (2.1)	11	11

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-26b

Sample Results: Contract Laboratory Program Inorganics
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC17-5	12/06/15	0 - 1	N	6,900	16,000	16,000	4,300	160	1,700	210	ND (0.214)
	12/06/15	2 - 3	N	9,400	34,000 J	17,000	5,600	220 J	2,300	370	ND (0.223)
	12/06/15	2 - 3	FD	9,900	45,000 J	19,000	6,600	360 J	1,800	500	ND (0.219)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-26c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC17-1	12/06/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (59)
	12/06/15	0 - 1	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.7	ND (53)	ND (53)	ND (53)	ND (53)	7.8	ND (53)	13	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	13	**59**
	12/06/15	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (4.8)	ND (5.5)	ND (5.5)	ND (6.4)
	12/06/15	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (4.7)	ND (5.6)	ND (5.6)	ND (6.5)
	12/06/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.6)	ND (5.2)	ND (5.2)	ND (6)
AOC17-2	12/06/15	0 - 1	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (6.5)
	12/06/15	2 - 3	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (4.8)	ND (5.7)	ND (5.7)	ND (6.6)
	12/06/15	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/06/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5)	ND (5.2)	ND (5.2)	ND (6)
AOC17-3	12/06/15	0 - 1	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (56)	ND (56)	ND (56)	ND (56)	7.1	ND (56)	7.5	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	8.2	**62**
	12/06/15	0 - 1	FD	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (6.6)
	12/06/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.2)	ND (5.4)	ND (5.4)	ND (6.2)
	12/06/15	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/06/15	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.3)	ND (6.1)
AOC17-4	12/06/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (59)
	12/06/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5)	ND (5.4)	ND (5.4)	ND (6.2)
	12/06/15	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (6.4)
AOC17-5	12/06/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.5	ND (53)	ND (53)	ND (53)	ND (53)	17	ND (53)	18	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	21	**60**
	12/06/15	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.2)	ND (5.5)	ND (5.5)	ND (6.4)
	12/06/15	2 - 3	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.7)	ND (5.4)	ND (5.4)	ND (6.2)
	12/06/15	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/06/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)

TABLE 3-26c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-26d

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)
			Commercial Screening Level [1]:	**670,000,000**
			Background [2]:	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Acetone**
Category 1				
AOC17-1	12/06/15	2 - 3	N	ND (48)
	12/06/15	5 - 6	N	ND (47)
	12/06/15	9 - 10	N	ND (46)
AOC17-2	12/06/15	2 - 3	N	ND (48)
	12/06/15	5 - 6	N	ND (51)
	12/06/15	9 - 10	N	ND (50)
AOC17-3	12/06/15	2 - 3	N	ND (52)
	12/06/15	5 - 6	N	ND (54)
	12/06/15	9 - 10	N	ND (52)
AOC17-4	12/06/15	2 - 3	N	ND (50)
	12/06/15	5 - 6	N	160
AOC17-5	12/06/15	2 - 3	N	ND (52)
	12/06/15	2 - 3	FD	ND (47)
	12/06/15	5 - 6	N	ND (54)
	12/06/15	9 - 10	N	ND (53)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than tthe commercial screening level or RWQCB ESL are circled.
Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency
SVOCs	semivolatile organic compounds
VOCs	volatile organic compounds

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for SVOCs and VOCs.

TABLE 3-26e
Sample Results: Total Petroleum Hydrocarbons
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC17-1	12/06/15	0 - 1	N	21	210
	12/06/15	0 - 1	FD	29	270
	12/06/15	2 - 3	N	ND (11)	ND (11)
	12/06/15	5 - 6	N	ND (11)	ND (11)
	12/06/15	9 - 10	N	ND (10)	ND (10)
AOC17-2	12/06/15	0 - 1	N	32	250
	12/06/15	2 - 3	N	ND (11)	65
	12/06/15	5 - 6	N	ND (10)	ND (10)
	12/06/15	9 - 10	N	ND (10)	ND (10)
AOC17-3	12/06/15	0 - 1	N	56	570 J
	12/06/15	0 - 1	FD	15	210 J
	12/06/15	2 - 3	N	ND (11)	14
	12/06/15	5 - 6	N	ND (11)	ND (11)
	12/06/15	9 - 10	N	ND (11)	ND (11)
AOC17-4	12/06/15	0 - 1	N	73	630
	12/06/15	2 - 3	N	ND (11)	53
	12/06/15	5 - 6	N	ND (11)	12
AOC17-5	12/06/15	0 - 1	N	33	310
	12/06/15	2 - 3	N	ND (11)	ND (11)
	12/06/15	2 - 3	FD	ND (11)	ND (11)
	12/06/15	5 - 6	N	ND (11)	ND (11)
	12/06/15	9 - 10	N	ND (10)	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-26f

Sample Results: Polychlorinated Biphenyls
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1]:	27,000	830	720	950	950	970	990	970	970	940
			Background[2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
Category 1													
AOC17-1	12/06/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	18	ND (17)	---	---	43.5
	12/06/15	0 - 1	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	23	ND (18)	---	---	50
AOC17-2	12/06/15	0 - 1	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
	12/06/15	2 - 3	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
AOC17-3	12/06/15	0 - 1	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
	12/06/15	0 - 1	FD	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	---	---	ND (38)
AOC17-4	12/06/15	0 - 1	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/06/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC17-5	12/06/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	18	ND (17)	ND (17)	ND (17)	43.5

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

TABLE 3-26f

Sample Results: Polychlorinated Biphenyls
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-26g
Sample Results: Dioxins and Furans
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Category 1																					
AOC17-2	12/06/15	0 - 1	N	120	28	ND (2.5)	ND (1.5)	ND (1.8)	4.2 J	ND (1.7)	ND (1.7)	ND (0.86)	ND (0.27)	ND (1.2)	ND (24)	ND (0.96)	ND (0.36)	ND (0.97)	1,100	52	4.4
	12/06/15	2 - 3	N	15	6.5 J	ND (1)	ND (0.86)	ND (0.86)	ND (1.3)	ND (1.1)	0.97 J	ND (0.34)	1 J	0.86 J	ND (7.9)	ND (0.82)	ND (0.37)	ND (0.34)	120	11 J	2.3
AOC17-4	12/06/15	0 - 1	N	77	15	ND (0.98)	ND (1.1)	ND (1.6)	2.9 J	ND (1.8)	ND (2.1)	ND (0.77)	1.4 J	ND (0.15)	ND (13)	ND (0.92)	ND (0.53)	ND (0.86)	740	28	4.3
	12/06/15	2 - 3	N	ND (6)	ND (1.3)	ND (0.62)	ND (0.5)	ND (0.65)	0.85 J	ND (0.65)	ND (0.58)	ND (0.56)	ND (0.69)	ND (0.73)	ND (0.53)	0.74 J	ND (0.3)	ND (0.29)	37	2.5 J	1.1

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-26h

Constituent Concentrations in Soil Compared to Screening Values
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	2	4 / 4 (100%)	4.4	0	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	5	0 / 19 (0%)	ND (2.3) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	5	19 / 19 (100%)	4.3	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	5	19 / 19 (100%)	230	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	5	0 / 19 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	5	3 / 19 (16%)	2.3	2	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	5	5 / 19 (26%)	0.49	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	5	19 / 19 (100%)	20	0	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	5	19 / 19 (100%)	6.6	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	5	19 / 19 (100%)	11	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	5	19 / 19 (100%)	24	2	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	5	0 / 19 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	5	0 / 19 (0%)	ND (1.1)	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	5	19 / 19 (100%)	17	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	5	0 / 19 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	5	0 / 19 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	5	0 / 19 (0%)	ND (2.3) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	5	19 / 19 (100%)	31	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	5	19 / 19 (100%)	71	1	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	2 / 2 (100%)	9,900	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	2 / 2 (100%)	45,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	2 / 2 (100%)	19,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	2 / 2 (100%)	6,600	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	2 / 2 (100%)	360	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	2 / 2 (100%)	2,300	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-26h

Constituent Concentrations in Soil Compared to Screening Values
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	1	2 / 2 (100%)	500	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 2 (0%)	ND (0.219)	NA	(NE)	NA	(NA)	0	(150)
Volatile Organic Compounds										
Acetone	µg/kg	5	1 / 14 (7.1%)	160	NA	(NE)	NA	(NA)	0	(670,000,000)
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	5	2 / 19 (11%)	9.5	NA	(NE)	NA	(NA)	0	(21,000)
Chrysene	µg/kg	5	3 / 19 (16%)	17	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	5	3 / 19 (16%)	18	NA	(NE)	NA	(NA)	0	(30,000,000)
Pyrene	µg/kg	5	3 / 19 (16%)	21	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	5	3 / 19 (16%)	62	3	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	5	2 / 7 (29%)	23	NA	(NE)	NA	(NA)	0	(970)
Total PCBs	µg/kg	5	2 / 7 (29%)	50	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	5	5 / 19 (26%)	73	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	5	9 / 19 (47%)	630	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	5	0 / 14 (0%)	ND (1.1)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-26h

Constituent Concentrations in Soil Compared to Screening Values
AOC 17 – Onsite Septic System
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-27a

Sample Results: Metals

AOC 18 – Combined Hazardous Waste Transference Pipelines

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																		
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	NE	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Trivalent Chromium	Vanadium	Zinc
Category 1																						
AOC18-1	01/12/16	0 - 0.5	N	ND (2.1)	4.2	120	ND (1)	ND (1)	0.25	19 J	5.7	12	**8.7 J**	0.14	1.2	14 J	ND (1)	ND (1)	ND (2.1)	---	24	36
	01/12/16	0 - 0.5	FD	ND (2.1)	3.6	110	ND (1)	ND (1)	0.23	14 J	4.6	8.9	6.2 J	ND (0.1)	ND (1)	10 J	ND (1)	ND (1)	ND (2.1)	---	20	32
	01/12/16	2 - 3	N	ND (2.1)	3.4	160	ND (1.1)	ND (1.1)	0.59	26	7.5	11	**9.1**	0.11	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1)	---	29	41
	01/12/16	5 - 6	N	ND (2.1)	3.3	180	ND (1)	ND (1)	ND (0.21)	24	8.5	14	4	ND (0.1)	**1.4**	17	ND (1)	ND (1)	ND (2.1)	---	38	40
AOC18-10	12/16/15	0 - 0.5	N	ND (2)	3.4	150	ND (1)	ND (1)	0.29	17	6.3	10	5.8	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2)	---	28	36
	12/16/15	2 - 3	N	ND (2.1) J	2.5	170	ND (1)	ND (1)	0.37	24	8.2	12	4.5	ND (0.1)	ND (1)	15	ND (1) J	ND (1)	ND (2.1)	---	33	45
	12/16/15	5 - 6	N	ND (2.1)	1.9	76	ND (1)	ND (1)	ND (0.21)	13	6.3	11	2.7	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	---	27	34
AOC18-11	01/11/16	0 - 0.5	N	ND (2.1)	4.3	130	ND (1.1)	ND (1.1)	0.64	17	6.2	11	**17**	0.13	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1)	---	27	38
	01/11/16	2 - 3	N	ND (2.1)	5.2	160	ND (1.1)	ND (1.1)	ND (0.21)	25	8.6	12	3.5	0.15	ND (1.1)	22	ND (1.1)	ND (1.1)	ND (2.1)	---	38	32
	01/11/16	5 - 6	N	ND (2.1)	2.3	95	ND (1)	ND (1)	ND (0.21)	11	6.1	7.8	3.3	ND (0.1)	ND (1)	9.1	ND (1)	ND (1)	ND (2.1)	---	24	28
AOC18-12	12/04/15	0 - 0.5	N	ND (2.1)	3.4	95	ND (1)	ND (1)	0.36	16	5.2	9.1	5.2	ND (0.1)	ND (1)	9.8	ND (1)	ND (1)	ND (2.1)	---	21	24
	12/04/15	2 - 3	N	ND (2.1)	4.7	120	ND (1.1)	ND (1.1)	ND (0.21)	7.8	3.7	5.9	2.6	ND (0.11)	ND (1.1)	6	ND (1.1)	ND (1.1)	ND (2.1)	---	23	22
	12/04/15	5 - 6	N	ND (2.2)	3.2	180	ND (1.1)	ND (1.1)	ND (0.22)	13	4.5	9	3.6	ND (0.11)	ND (1.1)	8.9	ND (1.1)	ND (1.1)	ND (2.2)	---	18	23
AOC18-2	01/12/16	0 - 0.5	N	ND (2.1)	4.1	130	ND (1.1)	ND (1.1)	0.23	21	6.9	9.6	5.1	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	---	28	36
	01/12/16	2 - 3	N	ND (2.2)	4.2	170	ND (1.1)	ND (1.1)	ND (0.22)	24	7.3	10	6.8	ND (0.11)	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2)	---	30	33
	01/12/16	5 - 6	N	ND (2.1)	3.9	180	ND (1.1)	ND (1.1)	ND (0.21)	13	5.2	9.6	4.1	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1)	---	23	27
AOC18-3	01/12/16	0 - 0.5	N	ND (2.1)	3.3	110	ND (1.1)	ND (1.1)	ND (0.21)	14	4.9	11	**11**	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1)	---	19	28
	01/12/16	2 - 3	N	ND (2.1)	3.7	180	ND (1)	ND (1)	0.22	26	6.9	11	6.2	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2.1)	---	29	35
	01/12/16	5 - 6	N	ND (2.1)	3.4	100	ND (1)	ND (1)	ND (0.21)	9.5	4.5	7.5	4.5	ND (0.1)	ND (1)	9.2	ND (1)	ND (1)	ND (2.1)	---	18	24
AOC18-4	12/04/15	0 - 0.5	N	ND (2.1)	2.9	99	ND (1)	ND (1)	ND (0.21)	15	4.6	9.3	6.7	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	---	21	29
	12/04/15	2 - 3	N	ND (2.1)	3	110	ND (1)	ND (1)	ND (0.21)	18	4.3	8.6	7.2	ND (0.11)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	---	20	26
	12/05/15	5 - 6	N	ND (2.1)	2.7	100	ND (1.1)	ND (1.1)	ND (0.21)	11	4.5	7.2	4.6	ND (0.11)	ND (1.1)	9	ND (1.1)	ND (1.1)	ND (2.1)	---	20	27
AOC18-5	12/04/15	0 - 0.5	N	ND (2.1) J	3.1 J	82 J	ND (1) J	ND (1) J	0.31	16	3.9 J	8.9	5.3 J	ND (0.1)	ND (1) J	10 J	ND (1) J	ND (1) J	ND (2.1) J	---	17	24
	12/04/15	2 - 3	N	ND (2.2)	3.3	140	ND (1.1)	ND (1.1)	ND (0.22)	30	6.6	11	4.7	ND (0.11)	ND (1.1)	21	ND (1.1)	ND (1.1)	ND (2.2)	---	28	31
	12/04/15	5 - 6	N	ND (2.2)	3.2	130	ND (1.1)	ND (1.1)	0.31	22	5	9.9	4.4	ND (0.11)	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.2)	---	23	29
AOC18-6	12/04/15	0 - 0.5	N	ND (2.2)	3.5	140	ND (1.1)	ND (1.1)	0.28	38	5.8	12	6.2	ND (0.11)	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2)	---	26	32
	12/04/15	2 - 3	N	ND (2.1)	3.6	130	ND (1.1)	ND (1.1)	0.26	20	5.5	14	7.1	ND (0.11)	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1)	---	24	28
	12/04/15	2 - 3	FD	ND (2.2)	4	150	ND (1.1)	ND (1.1)	ND (0.22)	18	5.3	10	4.2	ND (0.11)	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2)	---	25	26
	12/04/15	5 - 6	N	ND (2.2)	4	180	ND (1.1)	ND (1.1)	ND (0.22)	15	5.2	9	3.7	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2)	---	24	25
AOC18-7	12/08/15	0 - 0.5	N	ND (2.1)	3.1	97	ND (1.1)	ND (1.1)	ND (0.22)	26	6.4	13	4.7	ND (0.11)	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.1)	---	29	37
	12/08/15	2 - 3	N	ND (2.2)	3.4	80	ND (1.1)	ND (1.1)	ND (0.22)	31	9	15	3	ND (0.11)	ND (1.1)	**28**	1.4	ND (1.1)	ND (2.2)	---	37	35
AOC18-8	12/08/15	0 - 1	N	ND (2.2)	2.3	72 J	ND (1.1)	ND (1.1)	0.23	20 J	6.5 J	9.9	2.7	ND (0.11)	ND (1.1)	17 J	ND (1.1)	ND (1.1)	ND (2.2)	---	29 J	29
	12/08/15	2 - 3	N	ND (2.3)	2.3	120 J	ND (1.2)	ND (1.2)	ND (0.23)	31 J	8.9 J	16	2.6	ND (0.12)	ND (1.2)	25 J	ND (1.2)	ND (1.2)	ND (2.3)	---	37 J	32
AOC18-9	12/07/15	0 - 0.5	N	ND (2.1)	2.1	77	ND (1)	ND (1)	ND (0.21)	10	4	7.4	3.5	0.24	ND (1)	9	ND (1)	ND (1)	ND (2.1)	---	17	22
	12/07/15	0 - 0.5	FD	ND (2)	2.5	77	ND (1)	ND (1)	ND (0.2)	11	4	7.8	3.9	0.14	ND (1)	9.6	ND (1)	ND (1)	ND (2)	---	18	23
	12/07/15	2 - 3	N	ND (2.1)	1.8	130	ND (1.1)	ND (1.1)	0.39	22	5.8	11	3.7	ND (0.11)	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1)	---	25	26
Category 2																						
PA-3	11/19/89	1	N	ND (0.3)	---	---	ND (1)	ND (0.5)	ND (1)	**---**	ND (3)	---	**14.8**	0.058	ND (1)	14	ND (0.5)	ND (1)	ND (5)	---	---	**---**
	11/19/89	1	FD	---	2.6	169	---	---	---	**49**	---	8	**---**	---	---	---	---	---	---	---	25	**91**

TABLE 3-27a
Sample Results: Metals
AOC 18 – Combined Hazardous Waste Transference Pipelines
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																		
			Commercial Screening Level [1]:	470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	NE	1,000	350,000
			Background [2]:	NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Trivalent Chromium	Vanadium	Zinc
PC-1	11/14/89	1	N	ND (0.3)	2	123	ND (1)	ND (0.5)	ND (1)	10	6	10	**9.4**	0.032	ND (1)	16	ND (0.5)	ND (1)	ND (5)	---	10	26
PF-6	11/18/89	1	N	ND (0.3)	2	80	0.12	0.11	ND (1)	26	1.8	6.7	**28.5**	ND (0.002)	0.27	8	ND (0.1)	ND (0.05)	ND (1)	26	8	51
PF-8	11/18/89	1	N	ND (0.3)	1.9	92	ND (1)	ND (0.5)	ND (1)	12	ND (3)	7	**9**	0.007	0.82	7	ND (0.5)	ND (1)	ND (5)	---	ND (1)	27
PG-2	11/15/89 ⊖	0	N	ND (0.3)	---	---	ND (1)	ND (0.5)	ND (1)	---	ND (3)	---	**10.6**	0.026	ND (1)	9.6	ND (0.5)	4.4	ND (5)	---	---	**92.8**
	11/15/89 ⊖	0	FD	---	3	219	---	---	---	26	---	9	---	---	---	---	---	---	---	---	7	---
PH1	12/05/88	Unknown	N	ND (0.3)	3.19	---	ND (1)	ND (0.5)	ND (1)	23	---	ND (3)	---	0.061	ND (1)	8.5	ND (0.5)	ND (1)	---	---	---	---
	12/05/88	Unknown	FD	---	---	180	---	---	---	---	5.1	---	**20**	---	---	---	---	---	ND (1)	---	15	33
PH2	12/05/88	Unknown	N	ND (0.3)	2.42	150	ND (1)	0.6	**1.9**	**510**	6	8.7	**38**	0.076	ND (1)	6.7	ND (0.5)	ND (1)	ND (5)	---	13	**210**
PH-3	11/14/89	3	N	ND (0.3)	2.1	199	ND (1)	ND (0.5)	**2**	25	7	9	4	0.032	ND (1)	16	ND (0.5)	ND (1)	ND (5)	---	23	37
PH-4	11/14/89	3	N	5.8	2.1	175	ND (1)	ND (0.5)	ND (1)	35	6	8	**9**	0.006	ND (1)	17	ND (0.5)	ND (1)	ND (5)	---	23	53
PH-5	11/14/89	6	N	ND (0.3)	---	216	ND (1)	ND (0.5)	ND (1)	12	7	---	6	---	---	11	ND (0.5)	ND (1)	ND (5)	---	13	---
	11/14/89	6	FD	---	2.7	---	---	---	---	---	---	5	---	0.172	**15**	---	---	---	---	---	---	29
PH-6	11/18/89	1.5	N	ND (0.3)	1.7	66	ND (1)	ND (0.5)	ND (1)	10	9	13	2.3	0.045	ND (1)	**32**	ND (0.5)	ND (1)	ND (5)	---	29	58
PH-7	11/18/89	5	N	ND (0.3)	1.7	149	---	---	ND (1)	**52**	7	---	**9.6**	0.034	---	25	---	---	---	---	23	**118**
	11/18/89	5	FD	---	---	---	0.2	0.19	---	---	---	11	---	---	0.2	---	ND (0.1)	ND (0.05)	ND (1)	27	---	---
PH-8	11/18/89	3	N	ND (0.3)	2.1	83	**1**	ND (0.5)	ND (1)	37	6	16	6.1	ND (0.002)	ND (1)	25	ND (0.5)	ND (1)	ND (5)	---	42	41
PH-9	11/20/89	3	N	ND (0.3)	1.7	56	ND (1)	ND (0.5)	ND (1)	34	ND (3)	15	6.4	0.011	ND (1)	24	ND (0.5)	ND (1)	ND (5)	---	40	**61**
PH-10	11/20/89	2	N	ND (0.3)	1.4	113	0.26	ND (0.5)	ND (1)	26	ND (3)	5.1	**20**	0.075	ND (1)	18	0.6	ND (1)	ND (5)	---	25	12
PH-11	11/21/89	4	N	ND (0.3)	1.7	111	**1**	ND (0.5)	ND (1)	26	5	12	8	ND (0.002)	ND (1)	18	ND (0.5)	ND (1)	ND (5)	---	33	47
PH-12	11/21/89	4	N	ND (0.3)	2.2	90	**1**	ND (0.5)	ND (1)	28	4	12	8	ND (0.002)	ND (1)	19	ND (0.5)	ND (1)	ND (5)	---	35	44
PH-13	11/21/89	6	N	ND (0.3)	2.5	216	ND (1)	ND (0.5)	ND (1)	37	ND (3)	8	**12.5**	0.009	ND (1)	9	ND (0.5)	ND (1)	ND (5)	---	24	**102**

TABLE 3-27a

Sample Results: Metals
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Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-27b

Sample Results: Contract Laboratory Program Inorganics
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC18-7	12/08/15	2 - 3	N	14,000	36,000	26,000	9,700	270	2,600	1,700	ND (0.215)
AOC18-8	12/08/15	0 - 1	N	9,800 J	40,000	23,000	7,200 J	200	1,800	580	ND (0.218)
	12/08/15	2 - 3	N	13,000 J	42,000	25,000	9,300 J	210	2,500	620	ND (0.233)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-27c
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
			Commercial Screening Level[1]:	**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
			Background[2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC18-1	01/12/16	0 - 0.5	N	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (260)	ND (260)	ND (260)	ND (260)	47	ND (260)	56	ND (26)	ND (260)	ND (26)	ND (26)	56	**290**
	01/12/16	0 - 0.5	FD	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	ND (260)	60	ND (26)	ND (260)	ND (26)	ND (26)	64	**300**
	01/12/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	14	ND (53)	ND (53)	ND (53)	ND (53)	24	ND (53)	34	ND (5.3)	ND (53)	ND (5.2)	9.5	34	**60**
	01/12/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC18-10	12/16/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	14 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	13 J	**59**
	12/16/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	5.2	ND (52)	8	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	8.7	**58**
	12/16/15	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (57)
AOC18-11	01/11/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.7	ND (53)	ND (53)	ND (53)	ND (53)	8.1	ND (53)	19	ND (5.3)	ND (53)	ND (5.3)	7.1	17	**59**
	01/11/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	01/11/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC18-12	12/04/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.6	80	77	140	ND (52)	ND (52)	76	ND (52)	140	ND (5.2)	ND (52)	ND (5.2)	50	120	**130**
	12/04/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.1)	ND (5.3)	ND (5.3)	ND (6.1)
	12/04/15	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
AOC18-2	01/12/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	8.2	ND (54)	16	ND (5.4)	ND (54)	ND (5.4)	5.7	15	**60**
	01/12/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.8	ND (54)	ND (54)	ND (54)	ND (54)	7.9	ND (54)	13	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	12	**60**
	01/12/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC18-3	01/12/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	17	37	5.3	15	15	ND (5.3)	20	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	21	24
	01/12/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11	19	ND (5.2)	10	11	ND (5.2)	16	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	17	16
	01/12/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	8.7	13	ND (5.2)	5.6	8.3	ND (5.2)	9.4	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.7	13
AOC18-4	12/04/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	14	22	46	7.3	15	20	ND (5.2)	33	ND (5.2)	7.7	ND (5.2)	6.3	31	32
	12/04/15	2 - 3	N	9.1	12	ND (5.3)	ND (5.3)	ND (5.3)	7.7	13	23	ND (5.3)	9.1	12	ND (5.3)	14	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	15	19
	12/05/15	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.8	12	21	5.3	9.2	12	ND (5.3)	14	ND (5.3)	5.3	ND (4.7)	ND (5.3)	15	18
AOC18-5	12/04/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	10	75	80	140	ND (52)	56	74	ND (52)	150	ND (5.2)	ND (52)	ND (5.2)	63	130	**130**
	12/04/15	2 - 3	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	11	ND (56)	ND (56)	ND (56)	ND (56)	17	ND (56)	25	ND (5.6)	ND (56)	ND (4.5)	5.6	25	**63**
	12/04/15	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	16	ND (55)	55	ND (55)	ND (55)	27	ND (55)	680	ND (5.5)	ND (55)	ND (5.5)	410	530	**65**
AOC18-6	12/04/15	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	23	ND (54)	75	ND (54)	ND (54)	35	ND (54)	45	ND (5.4)	ND (54)	ND (5.4)	8.2	46	**67**
	12/04/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	17	ND (54)	54	ND (54)	ND (54)	27	ND (54)	37	ND (5.4)	ND (54)	ND (5.4)	6.8	38	**64**
	12/04/15	2 - 3	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	17	25	43	8.7	16	23	ND (5.4)	34	ND (5.4)	9.4	ND (4.7)	6.1	34	35
	12/04/15	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (4.7)	ND (5.6)	ND (5.6)	ND (6.5)
AOC18-7	12/08/15	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (62)
	12/08/15	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.3)	ND (5.5)	ND (5.5)	ND (6.4)
AOC18-8	12/08/15	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (62)
	12/08/15	2 - 3	N	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.7)	ND (5.8)	ND (5.8)	ND (6.7)
AOC18-9	12/07/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	19 J	ND (5.1)	ND (51)	ND (5.1)	8.2 J	17 J	**59**
	12/07/15	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (510)	ND (510)	ND (510)	ND (510)	51	ND (510)	21 J	ND (5.1)	ND (510)	ND (5.1)	14 J	17 J	**570**
	12/07/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (61)

TABLE 3-27c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-27d

Sample Results: Total Petroleum Hydrocarbons
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
Commercial Screening Level [1]:				**1,100**	**140,000**
RWQCB Environmental Screening Level [2]:				**230**	**11,000**
Background [3]:				**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC18-1	01/12/16	0 - 0.5	N	87	500
	01/12/16	0 - 0.5	FD	88	460
	01/12/16	2 - 3	N	23	340
	01/12/16	5 - 6	N	ND (10)	13
AOC18-10	12/16/15	0 - 0.5	N	18	260
	12/16/15	2 - 3	N	ND (10)	82
	12/16/15	5 - 6	N	ND (10)	34
AOC18-11	01/11/16	0 - 0.5	N	ND (11)	35
	01/11/16	2 - 3	N	ND (11)	ND (11)
	01/11/16	5 - 6	N	ND (10)	ND (10)
AOC18-12	12/04/15	0 - 0.5	N	100	570
	12/04/15	2 - 3	N	ND (11)	ND (11)
	12/04/15	5 - 6	N	ND (11)	13
AOC18-2	01/12/16	0 - 0.5	N	ND (11)	32
	01/12/16	2 - 3	N	ND (11)	41
	01/12/16	5 - 6	N	ND (11)	ND (11)
AOC18-3	01/12/16	0 - 0.5	N	ND (11)	55
	01/12/16	2 - 3	N	ND (10)	64
	01/12/16	5 - 6	N	ND (10)	11
AOC18-4	12/04/15	0 - 0.5	N	ND (10)	41
	12/04/15	2 - 3	N	ND (11)	76
	12/05/15	5 - 6	N	ND (11)	36
AOC18-5	12/04/15	0 - 0.5	N	11	34
	12/04/15	2 - 3	N	ND (11)	19
	12/04/15	5 - 6	N	ND (11)	35
AOC18-6	12/04/15	0 - 0.5	N	ND (11)	46
	12/04/15	2 - 3	N	ND (11)	53
	12/04/15	2 - 3	FD	ND (11)	22
	12/04/15	5 - 6	N	ND (11)	ND (11)
AOC18-7	12/08/15	0 - 0.5	N	180	600
	12/08/15	2 - 3	N	ND (11)	ND (11)
AOC18-8	12/08/15	0 - 1	N	44	390
	12/08/15	2 - 3	N	ND (12)	110
AOC18-9	12/07/15	0 - 0.5	N	120	640
	12/07/15	0 - 0.5	FD	110	640
	12/07/15	2 - 3	N	61	480

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

TABLE 3-27d

Sample Results: Total Petroleum Hydrocarbons
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-27e

Sample Results: General Chemistry Parameters
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry		
				(mg/kg)	(pH units)	(µS/cm)
Comercial Regional Screening Levels [1]:				47,000	NE	NE
DTSC-SL [2]:				NE	NE	NE
Background [3]:				NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Fluoride	pH	Specific conductance
Category 1						
AOC18-1	01/12/16	0 - 0.5	N	---	8	---
	01/12/16	0 - 0.5	FD	---	8	---
	01/12/16	2 - 3	N	---	9.1	---
	01/12/16	5 - 6	N	---	9.5	---
AOC18-10	12/16/15	0 - 0.5	N	---	8.1	---
	12/16/15	2 - 3	N	---	9.1	---
	12/16/15	5 - 6	N	---	9.2	---
AOC18-11	01/11/16	0 - 0.5	N	---	9.4	---
	01/11/16	2 - 3	N	---	8.6	---
	01/11/16	5 - 6	N	---	8.9	---
AOC18-12	12/04/15	0 - 0.5	N	---	8.8 J	---
	12/04/15	2 - 3	N	---	8.6 J	---
	12/04/15	5 - 6	N	---	9.4 J	---
AOC18-2	01/12/16	0 - 0.5	N	---	8.2	---
	01/12/16	2 - 3	N	---	8.4	---
	01/12/16	5 - 6	N	---	8.3	---
AOC18-3	01/12/16	0 - 0.5	N	---	8.5	---
	01/12/16	2 - 3	N	---	8	---
	01/12/16	5 - 6	N	---	8.2	---
AOC18-4	12/04/15	0 - 0.5	N	---	9 J	---
	12/04/15	2 - 3	N	---	8.6 J	---
	12/05/15	5 - 6	N	---	9	---
AOC18-5	12/04/15	0 - 0.5	N	---	9.4 J	---
	12/04/15	2 - 3	N	---	9.1 J	---
	12/04/15	5 - 6	N	---	9.2 J	---
AOC18-6	12/04/15	0 - 0.5	N	---	8.7 J	---
	12/04/15	2 - 3	N	---	8.5 J	---
	12/04/15	2 - 3	FD	---	8.7 J	---
	12/04/15	5 - 6	N	---	9.4 J	---
AOC18-7	12/08/15	0 - 0.5	N	---	9.8	---
	12/08/15	2 - 3	N	---	10	---
AOC18-8	12/08/15	0 - 1	N	---	9.5	---
	12/08/15	2 - 3	N	---	9.8	---
AOC18-9	12/07/15	0 - 0.5	N	---	8.6	---
	12/07/15	0 - 0.5	FD	---	8.4	---
	12/07/15	2 - 3	N	---	8.7	---
Category 2						
PA-3	11/19/89	1	N	583	8.2	244
PC-1	11/14/89	1	N	310	8.59	120

TABLE 3-27e

Sample Results: General Chemistry Parameters
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry		
				(mg/kg)	(pH units)	(µS/cm)
Comercial Regional Screening Levels [1]:				**47,000**	**NE**	**NE**
DTSC-SL [2]:				**NE**	**NE**	**NE**
Background [3]:				**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**Fluoride**	**pH**	**Specific conductance**
PF-6	11/18/89	1	N	380	8.69	980
PF-8	11/18/89	1	N	519	8.5	98
PG-2	11/15/89 ϴ	0	N	890	9	---
	11/15/89 ϴ	0	FD	---	---	686
PH1	12/05/88	Unknown	N	---	8.57	---
	12/05/88	Unknown	FD	502	---	---
PH2	12/05/88	Unknown	N	500	8.45	---
PH-3	11/14/89	3	N	520	9.96	320
PH-4	11/14/89	3	N	480	9.14	270
PH-5	11/14/89	6	N	570	8.42	160
PH-6	11/18/89	1.5	N	506	10.3	412
PH-7	11/18/89	5	FD	650	10.26	810
PH-8	11/18/89	3	N	584	10.2	449
PH-9	11/20/89	3	N	851	9.7	368
PH-10	11/20/89	2	N	516	10.2	418
PH-11	11/21/89	4	N	617	8.6	225
PH-12	11/21/89	4	N	629	8.9	303
PH-13	11/21/89	6	N	670	8.5	328

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-27f

Sample Results: Polychlorinated Biphenyls
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1] :	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC18-1	01/12/16	0 - 0.5	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	67	ND (17) J	---	---	92.5
	01/12/16	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	36	ND (17)	---	---	61.5
	01/12/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	87	54	---	---	158
	01/12/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC18-10	12/16/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/16/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	120	52	---	---	189
	12/16/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC18-11	01/11/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/11/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/11/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC18-12	12/04/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	18	ND (17)	---	---	43.5
	12/04/15	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/04/15	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC18-2	01/12/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	29	ND (18)	---	---	56
	01/12/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	85	ND (18)	---	---	112
	01/12/16	5 - 6	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC18-3	01/12/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	26	ND (18)	---	---	53
	01/12/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	24	ND (17)	---	---	49.5
	01/12/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC18-4	12/04/15	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/04/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/05/15	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC18-5	12/04/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	69	120	---	---	206
	12/04/15	2 - 3	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	42	42	---	---	102
	12/04/15	5 - 6	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	20	28	---	---	66

TABLE 3-27f

Sample Results: Polychlorinated Biphenyls
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
			Background[2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC18-6	12/04/15	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	20	38	---	---	76
	12/04/15	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	22	45	---	---	85
	12/04/15	2 - 3	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	37	43	---	---	98
	12/04/15	5 - 6	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC18-7	12/08/15	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	12/08/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC18-8	12/08/15	0 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	12/08/15	2 - 3	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
AOC18-9	12/07/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/07/15	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/07/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

TABLE 3-27f

Sample Results: Polychlorinated Biphenyls
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-27g

Sample Results: Dioxins and Furans

AOC 18 – Combined Hazardous Waste Transference Pipelines

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC18-1	01/12/16	0 - 0.5	N	7,500 J	330 J	16 J	18 J	30 J	110 J	ND (9.6) J	33 J	9.1 J	ND (8.4) J	4.8 J	ND (480) J	10 J	ND (0.22) J	2.7 J	90,000 J	600 J	**160**
AOC18-12	12/04/15	0 - 0.5	N	940 J	110 J	6.2 J	ND (7) J	ND (0.82) J	26 J	ND (5.7) J	13 J	ND (0.94) J	ND (4.5) J	ND (0.97) J	ND (120) J	1.9 J	ND (0.28) J	ND (0.33) J	8,800 J	190 J	**27**
AOC18-3	01/12/16	0 - 0.5	N	470 J	31 J	ND (2) J	2.5 J	1.9 J	9.9 J	ND (1.7) J	4.3 J	ND (0.22) J	ND (1.3) J	ND (1.1) J	ND (38) J	ND (0.14) J	ND (0.2) J	ND (0.98) J	4,500 J	77 J	**11**
AOC18-5	12/04/15	0 - 0.5	N	870 J	100 J	8.1 J	ND (5.1) J	8.2 J	23 J	7.9 J	9.6 J	ND (0.55) J	ND (3.2) J	6.3 J	ND (130) J	4.9 J	ND (0.59) J	3.5 J	8,700 J	190 J	**28**
AOC18-9	12/07/15	0 - 0.5	N	1,100 J	54 J	ND (1.8) J	ND (3) J	ND (3.6) J	19 J	ND (0.98) J	8 J	ND (1.2) J	ND (2) J	ND (1.5) J	ND (100) J	2.2 J	ND (0.29) J	ND (1.6) J	13,000 J	100 J	**26**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.

Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.

Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
μg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-27h

Constituent Concentrations in Soil Compared to Screening Values
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	5	5 / 5 (100%)	160	5	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	29	1 / 50 (2.0%)	5.8	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	29	50 / 50 (100%)	5.2	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	29	50 / 50 (100%)	216	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	29	6 / 50 (12%)	1	3	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	29	3 / 50 (6.0%)	0.6	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	29	16 / 50 (32%)	2	2	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	29	49 / 49 (100%)	510	3	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	29	44 / 49 (90%)	9	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	29	49 / 50 (98%)	16	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	29	50 / 50 (100%)	38	14	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	29	18 / 50 (36%)	0.24	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	29	6 / 50 (12%)	15	2	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	29	49 / 49 (100%)	32	2	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	29	2 / 50 (4.0%)	1.4	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	29	0 / 50 (0%)	ND (1.2)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	29	0 / 50 (0%)	ND (5) ‡	NA	(NE)	NA	(NA)	0	(12)
Trivalent Chromium	mg/kg	2	2 / 2 (100%)	27	NA	(NE)	NA	(NA)	NA	(NE)
Vanadium	mg/kg	29	48 / 49 (98%)	42	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	29	49 / 49 (100%)	210	5	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	3 / 3 (100%)	14,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	2 / 2 (100%)	42,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	2	2 / 2 (100%)	26,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	2 / 2 (100%)	9,700	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	2	2 / 2 (100%)	270	0	(402)	NA	(NA)	0	(6,900)

TABLE 3-27h

Constituent Concentrations in Soil Compared to Screening Values
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Potassium	mg/kg	2	2 / 2 (100%)	2,600	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	2	2 / 2 (100%)	1,700	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	2	0 / 3 (0%)	ND (0.233)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	12	1 / 33 (3.0%)	9.1	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	12	1 / 33 (3.0%)	12	NA	(NE)	NA	(NA)	0	(3,000,000)
Anthracene	µg/kg	12	2 / 33 (6.1%)	10	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	12	13 / 33 (39%)	80	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	12	9 / 33 (27%)	80	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	12	11 / 33 (33%)	140	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	12	4 / 33 (12%)	8.7	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	12	8 / 33 (24%)	56	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	12	19 / 33 (58%)	76	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	12	20 / 33 (61%)	680	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	12	3 / 33 (9.1%)	9.4	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	12	11 / 33 (33%)	410	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	12	20 / 33 (61%)	530	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	12	20 / 33 (61%)	570	14	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	12	13 / 33 (39%)	120	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	12	7 / 33 (21%)	120	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	12	13 / 33 (39%)	206	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	12	9 / 33 (27%)	180	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	12	27 / 33 (82%)	640	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	12	0 / 21 (0%)	ND (1.5)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-27h

Constituent Concentrations in Soil Compared to Screening Values
AOC 18 – Combined Hazardous Waste Transference Pipelines
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-28a
Sample Results: Metals
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC19-10	12/16/15	0 - 0.5	N	ND (2.1)	4.5	110	ND (1.1)	ND (1.1)	**14**	**320**	3.5	**170**	**110**	ND (0.1)	**240**	8.9	ND (1.1)	ND (1.1)	ND (2.1)	16	**280**
	12/16/15	2 - 3	N	ND (2.2)	4.3	130	ND (1.1)	ND (1.1)	**9.3**	**210**	4.5	16	**43**	ND (0.11)	**81**	10	ND (1.1)	ND (1.1)	ND (2.2)	18	**64**
	01/22/17	5 - 5.5	N	ND (2.1)	2.2	20	ND (1)	ND (1)	**0.85**	3.4	1.1	ND (2.1)	ND (1)	ND (0.1)	ND (1)	2	ND (1)	ND (1)	2.2	4.4	5.5
	01/22/17	6.5 - 7	N	ND (2.1)	2.9	58	ND (1)	ND (1)	0.52	15	2.1	3.7	2.8	ND (0.1)	**6.4**	3.3	ND (1)	ND (1)	2.2	12	13
AOC19-11	03/10/16	0 - 1	N	ND (2)	6.6	170	ND (1)	ND (1)	**2.3**	29	6.4	**100**	**24**	ND (0.1)	**510**	11	ND (1)	ND (1)	ND (2)	22	**76**
	03/10/16	2 - 3	N	ND (2.1)	4.5	120	ND (1.1)	ND (1.1)	0.21	8.9	4.2	7.3	6.6	ND (0.1)	**13 J**	9.3	ND (1.1)	ND (1.1)	ND (2.1)	18	26
	03/10/16	2 - 3	FD	ND (2.1)	5.4	130	ND (1.1)	ND (1.1)	ND (0.21)	10	8.2	9.1	7.2	ND (0.11)	**5 J**	10	ND (1.1)	ND (1.1)	ND (2.1)	17	26
	01/23/17	5 - 6	N	ND (2)	2.1	46	ND (1)	ND (1)	**1.6**	21	1.9	4.2	1.7	ND (0.1)	**1.5**	3	ND (1)	ND (1)	ND (2)	8.4	11
	01/23/17	9 - 10	N	ND (2.1)	3.2	83	ND (1)	ND (1)	**1.1**	13	4.6	7.1	3	ND (0.1)	**5.8**	6.7	ND (1)	ND (1)	ND (2.1)	12	16
AOC19-12	01/21/17	0 - 0.5	N	ND (2.2)	3.6	110	ND (1.1)	**1.4**	0.4	20	3.2	8.5	**63**	ND (0.11)	1.2	6.2	ND (1.1)	ND (1.1)	ND (2.2)	16	34
	01/21/17	2 - 3	N	ND (2.1)	1.6	82 J	ND (1.1)	ND (1.1)	ND (0.21)	4.4	1.9	3.6	2.7	ND (0.11)	ND (1.1)	3.6	ND (1.1)	ND (1.1)	ND (2.1)	8.4	14
	01/21/17	2 - 3	FD	ND (2)	2.1	61 J	ND (1)	ND (1)	ND (0.2)	3.8	1.8	3.1	2.4	ND (0.1)	ND (1)	3	ND (1)	ND (1)	2.1	7.8	12
	01/21/17	4 - 5	N	ND (2)	2	49	ND (1)	ND (1)	ND (0.2)	3.4	1.5	3	2	ND (0.1)	ND (1)	2.6	ND (1)	ND (1)	2.1	7.2	10
AOC19-13	01/22/17	0 - 0.5	N	ND (2.1)	3.8	110	ND (1.1)	ND (1.1)	0.52	23	4.3	10	**13**	ND (0.1)	**2.6**	8.1	ND (1.1)	ND (1.1)	ND (2.1)	18	40
	01/22/17	2 - 3	N	ND (2.2)	3.5	120	ND (1.1)	ND (1.1)	0.35	18	4.2	7.9	5	ND (0.11)	ND (1.1)	7.2	ND (1.1)	ND (1.1)	ND (2.2)	20	26
	01/22/17	5 - 6	N	ND (2.1)	3.2	65	ND (1)	ND (1)	ND (0.2)	5.8	3	4.7	2.1	ND (0.1)	ND (1)	5.9	ND (1)	ND (1)	2.1	13	13
AOC19-14	01/21/17	0 - 0.5	N	ND (2.1)	3.8	78 J	ND (1)	**7.2 J**	**1.4**	24 J	2.8	7.4	**17 J**	ND (0.1)	**2.8**	5	ND (1)	ND (1)	ND (2.1)	14 J	47
	01/21/17	0 - 0.5	FD	ND (2.1)	4.9	97 J	ND (1)	**14 J**	**1.2**	34 J	3.4	11	**43 J**	ND (0.1)	**4**	6.8	ND (1)	ND (1) J	ND (2.1)	18 J	54
	01/21/17	2 - 3	N	ND (2.1)	2.4	79	ND (1)	ND (1)	0.24	10	2.3	2.9	1.8	ND (0.1)	ND (1)	3.7	ND (1)	ND (1) J	2.1	12	13
	01/21/17	5 - 6	N	ND (2.1)	3.8	71	ND (1)	ND (1)	0.22	13	2.6	3.9	3	ND (0.1)	ND (1)	5.2	ND (1)	ND (1) J	ND (2.1)	17	17
AOC19-15	01/21/17	0 - 0.5	N	ND (2.1)	4.6	66	ND (1.1)	ND (1.1)	ND (0.21)	16	6.1	6	4	ND (0.1)	ND (1.1)	12	ND (1.1)	ND (1.1) J	ND (2.1)	26	33
	01/21/17	2 - 3	N	ND (2.2)	4.8	110	ND (1.1)	ND (1.1)	0.3	16	5.8	7	5.2	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1) J	ND (2.2)	25	27
	01/21/17	5 - 6	N	ND (2)	2.8	57	ND (1)	ND (1)	ND (0.2)	11	3.3	4.1	3.9	ND (0.1)	ND (1)	5.5	ND (1)	ND (1) J	ND (2)	18	21
AOC19-5	12/06/15	0 - 0.5	N	ND (2.1)	2.5	91	ND (1.1)	ND (1.1)	**2.1**	**54**	3.7	8.7	**20**	4.6	ND (1.1)	9.6	ND (1.1)	ND (1.1)	ND (2.1)	20	27
	12/06/15	2 - 3	N	ND (2.1)	3.1	89	ND (1.1)	ND (1.1)	**2**	**50**	3.1	7.8	**24**	6	ND (1.1)	7.2	ND (1.1)	ND (1.1)	ND (2.1)	19	29
AOC19-6	01/23/16	0 - 0.5	N	ND (2.1)	4	110	ND (1)	**1.4**	7	**240**	5	**37**	**310**	ND (0.1)	**4.4**	8.6	ND (1)	ND (1)	ND (2.1)	18	**170**
	01/23/16	2 - 3	N	ND (2.2)	3	62	ND (1.1)	ND (1.1)	0.51	22	2.9	7	8.3	ND (0.11)	ND (1.1)	6.4	ND (1.1)	ND (1.1)	ND (2.2)	14	19
AOC19-7	01/23/16	0 - 0.5	N	ND (2.3)	6.4	150	ND (1.2)	ND (1.2)	**11 J**	**440 J**	7	**26 J**	**200 J**	ND (0.12)	**2.5**	14	ND (1.2) J	ND (1.2)	ND (2.3)	26 J	**88 J**
	01/23/16	0 - 0.5	FD	ND (2.4)	5.6	150	ND (1.2)	ND (1.2)	**14 J**	**230 J**	5.7	**19 J**	**60 J**	ND (0.12)	**1.7**	13	ND (1.2)	ND (1.2)	ND (2.4)	26	**59 J**
	01/23/16	2 - 3	N	ND (2.3)	5.7	160	ND (1.2)	ND (1.2)	**7.2**	**300**	5.7	**26**	**120**	ND (0.12)	**3.1**	12	ND (1.2)	ND (1.2)	ND (2.3)	25	**94**
AOC19-8	12/16/15	0 - 0.5	N	ND (2.1)	3.8	130	ND (1.1)	ND (1.1)	**13**	**310**	3.9	8.2	**23**	ND (0.1)	**17**	8.6	ND (1.1)	ND (1.1)	ND (2.1)	17	29
	12/16/15	2 - 3	N	ND (2.1)	2.8	89	ND (1)	ND (1)	**8**	**67**	2.6	4.2	3	ND (0.1)	**2**	4.7	ND (1)	ND (1)	ND (2.1)	12	14
	12/16/15	5 - 6	N	ND (2)	2.2	23	ND (1)	ND (1)	**2.8**	17	1.8	3	2	ND (0.1)	**1.8**	3.4	ND (1)	ND (1)	ND (2)	8.7	11
	12/16/15	9 - 10	N	ND (2)	2.4	23	ND (1)	ND (1)	**2.6**	15	1.5	2.3	1.9	ND (0.1)	**2**	2.3	ND (1)	ND (1)	ND (2)	7.6	8.3
AOC19-9	12/05/15	0 - 0.5	N	ND (2.1)	3.1	130	ND (1.1)	ND (1.1)	0.59	23	4.9	8.3	3.3	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1)	23	23
	12/05/15	2 - 3	N	ND (2)	2.9	52	ND (1)	ND (1)	ND (0.2)	5.1	2	3.2	2.1	ND (0.1)	1.2	3.2	ND (1)	ND (1)	ND (2)	13	10
	12/06/15	5 - 6	N	ND (2.1)	3.4	130	ND (1)	ND (1)	ND (0.21)	8.3	4.3	5.1	3	ND (0.1)	ND (1)	5.1	ND (1)	ND (1)	ND (2.1)	19	22
AOC19-OS1	01/12/11	0 - 0.5	N	ND (2)	4	130	ND (1)	ND (1)	**1.1**	25	3.5	5.9	7.3	ND (0.1)	**8.8**	7.5	ND (1)	ND (1)	ND (2)	19	25
	01/12/11	1 - 2	N	ND (2.1)	4.6	130	ND (1)	ND (1)	**0.91**	17	3.1	8.7	**15**	ND (0.1)	**18**	6.4	ND (1)	ND (1)	ND (2.1)	18	38

TABLE 3-28a
Sample Results: Metals
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
			Background [2]:	NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC19-OS10	12/04/13	0 - 0.5	N	ND (2.1)	4.2	130	ND (1.1)	ND (1.1)	**22**	**370**	4.1	**17**	**120**	ND (0.11)	**140**	9.2	ND (1.1)	ND (1.1)	ND (2.1)	20	**98**
	12/04/13	2 - 3	N	ND (2.1)	2.6	76	ND (1)	ND (1)	**3**	24	2.1	4.6	6.1	ND (0.1)	**37**	4.8	ND (1)	ND (1)	ND (2.1)	13	18
AOC19-OS2	01/12/11	0 - 0.5	N	ND (2.1)	4.2	100	ND (1)	ND (1)	**1**	18	3	4.6	5	ND (0.1)	**27**	7.2	ND (1)	ND (1)	ND (2.1)	18	18
	01/12/11	1 - 2	N	ND (2.1)	4.9	110	ND (1)	ND (1)	**0.92**	12	4	6.2	5.1	ND (0.1)	**110**	6.3	ND (1)	ND (1)	ND (2.1)	17	20
AOC19-OS3	01/12/11	0 - 0.5	N	ND (2)	4.7	140	ND (1)	ND (1)	ND (0.41)	7.9	2.9	ND (4.1)	5.1	ND (0.1)	ND (2)	5.7	ND (1)	ND (1)	ND (2)	17	17
	01/12/11	1 - 2	N	ND (2.1)	4.4	110	ND (1)	ND (1)	ND (0.41)	6.8	3.6	2.9	3.7	ND (0.1)	ND (1)	5.5	ND (1)	ND (1)	ND (2.1)	16	16
AOC19-OS4	01/12/11	0 - 0.5	N	ND (2.1)	4.9	130	ND (1.1)	ND (1.1)	ND (0.42)	12	3.3	5.3	4.8	ND (0.11)	ND (1.1)	7.7	ND (1.1)	ND (1.1)	ND (2.1)	20	19
	01/12/11	1 - 2	N	ND (2.1)	4.2	130	ND (1.1)	ND (1.1)	ND (0.43)	10	3	3.6	4.4	ND (0.11)	ND (1.1)	5.9	ND (1.1)	ND (1.1)	ND (2.1)	16	18
AOC19-OS7	12/04/13	0 - 0.5	N	ND (2.2)	4.4	190	ND (1.1)	ND (1.1)	**27**	**510**	5.5	**37**	**240**	ND (0.11)	**9.9**	12	ND (1.1)	ND (1.1)	ND (2.2)	20	**340**
	12/04/13	2 - 3	N	ND (2.2)	4.2	160	ND (1.1)	ND (1.1)	**31**	**1,100**	6.1	**20**	**54**	ND (0.11)	**5.1**	15	ND (1.1)	ND (1.1)	ND (2.2)	25	**280**
AOC19-OS8	12/04/13	0 - 0.5	N	ND (2) J	3.1	110	ND (1)	ND (1)	**13**	**160**	2.3	9.8	**86**	ND (0.1)	**190**	5.1	ND (1)	ND (1)	ND (2)	15	43
	12/04/13	2 - 3	N	ND (2)	3.2	74	ND (1)	ND (1)	**1.4**	20	2.4	5.5	**14**	ND (0.1)	**77**	4.9	ND (1)	ND (1)	ND (2)	15	21
Category 2																					
SS#1	01/30/06	0	N	12	3.4	150	0.5	**1.6**	---	**3,000**	3.8	**37**	**300**	0.051	**30**	10	**2**	0.99	0.99	15	**200**
SS#2	01/30/06	0	N	10	2.7	320	ND (0.48)	**2**	---	30	3.9	**50**	**790**	ND (0.05)	**61**	9.3	ND (1.9)	ND (0.96)	ND (0.96)	12	**350**
SS#3	01/30/06	0	N	12	3.8	370	ND (0.49)	**2.3**	---	**2,800**	4.7	**70**	**890**	0.095	**80**	10	ND (2)	ND (0.98)	1	15	**480**
SS#4	01/30/06	0	N	5.8	3.2	290	ND (0.5)	**2.7**	---	**2,100**	5	**84**	**600**	0.075	**300**	11	ND (2)	ND (1)	ND (1)	15	**380**
SS#5	01/30/06	0	N	3.8	3.2	180	ND (0.48)	**4.5**	---	13	5	**43**	**480**	0.1	**130**	12	ND (1.9)	ND (0.95)	ND (0.95)	13	**470**
SS#6	01/30/06	0	N	16	2.6	160	ND (0.5)	**1.5**	---	**4,300**	3.6	**49**	**290**	ND (0.049)	**70**	9.7	ND (2)	ND (0.99)	ND (0.99)	12	**320**
SS#7	01/30/06	0	N	14	2.3	220	ND (0.49)	**1.9**	---	34	4	**37**	**710**	0.1	**23**	10	ND (2)	ND (0.98)	ND (0.98)	12	**270**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-28b

Sample Results: Contract Laboratory Program Inorganics
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC19-10	01/22/17	5 - 5.5	N	670	17,000	2,400	3,100	64	170 J	280 J	ND (0.208) J
AOC19-12	01/21/17	2 - 3	N	2,600	21,000	4,200	4,700	140	570 J	660 J	ND (0.205) J
AOC19-8	12/16/15	0 - 0.5	N	5,600	25,000	14,000	5,300	170	1,400	1,400	ND (0.0421) J
	12/16/15	2 - 3	N	4,100	20,000	6,300	4,200	120	1,000	950	ND (0.0413) J
AOC19-OS8	12/04/13	0 - 0.5	N	3,700	23,000	7,300	4,100	140	920	990	ND (1) J
	12/04/13	2 - 3	N	3,400	22,000	7,400	4,200	130	870	480	ND (1) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-28c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC19-10	12/16/15	0 - 0.5	N	5.4 R	5.4 R	5.4 R	5.4 R	14 J	220 J	260 J	460 J	210 J	160 J	200 J	5.4 R	450 J	5.4 R	160 J	5.4 R	140 J	410 J	**350 JR**
	12/16/15	2 - 3	N	5.4 R	5.4 R	5.4 R	5.4 R	5.4 R	19 J	29 J	58 J	7.6 J	28 J	26 J	5.4 R	38 J	5.4 R	7.6 J	5.4 R	8.4 J	39 J	40 JR
	01/22/17	5 - 5.5	N	---	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (390)
AOC19-11	03/10/16	0 - 1	N	5.1 R	5.1 R	5.1 R	5.1 R	5.1 R	20 J	31 J	85 J	14 J	26 J	36 J	5.1 R	43 J	5.1 R	12 J	5.1 R	13 J	40 J	46 JR
AOC19-12	01/21/17	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	15	19 J	53 J	6.5 J	11 J	21	ND (5.4)	28	ND (5.4)	6.5 J	ND (5.4)	7.6	28	29
	01/21/17	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	01/21/17	2 - 3	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	01/21/17	4 - 5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC19-13	01/22/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	35	56	130	23 J	31 J	55	ND (5.3)	55	ND (5.3)	22 J	ND (5.3)	13	57	**78**
	01/22/17	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.2	8.3 J	19 J	ND (5.4)	5.8 J	9.8	ND (5.4)	10	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	11	14
	01/22/17	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC19-14	01/21/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	25 J	35 J	84 J	17 J	26	39 J	ND (5.2)	49 J	ND (5.2)	16 J	ND (5.2)	14	48 J	50
	01/21/17	0 - 0.5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	64 J	100	240	80	59	110 J	ND (5.2)	120 J	ND (5.2)	73	ND (5.2)	31	130 J	**140**
	01/21/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/21/17	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC19-15	01/21/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	12	ND (5.3)	ND (5.3)	6	ND (5.3)	7.4	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	9.7
	01/21/17	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.3	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.7
	01/21/17	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	12	25	9.6	8.6	13	ND (5.1)	13	ND (5.1)	8.6	ND (5.1)	ND (5.1)	14	19
AOC19-5	12/06/15	2 - 3	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	27 J	26 J	78 J	8.7 J	32 J	32 J	5.2 R	36 J	5.2 R	8.3 J	5.2 R	5.2 R	41 J	40 JR
AOC19-6	01/23/16	0 - 0.5	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	5.5 J	8 J	26 J	5.2 R	10 J	12 J	5.2 R	13 J	5.2 R	5.2 R	5.2 R	5.2 R	12 J	14 JR
AOC19-7	01/23/16	0 - 0.5	N	5.8 R	5.8 R	5.8 R	5.8 R	5.8 R	11 J	5.8 R	50 J	5.8 R	22 J	22 J	5.8 R	31 J	5.8 R	5.8 R	5.8 R	10 J	29 J	12 JR
	01/23/16	2 - 3	N	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	5.7 R	6.6 R
AOC19-8	12/16/15	0 - 0.5	N	5.2 R	5.2 R	5.2 R	5.2 R	5.2 R	14 J	21 J	56 J	7.6 J	22 J	19 J	5.2 R	25 J	5.2 R	7 J	5.2 R	5.9 J	27 J	32 JR
AOC19-OS1	01/12/11	0 - 0.5	N	ND (5.1)	6.5 J	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	9.2	8.8	10	ND (5.1)	5.8	ND (5.1)	ND (5.1)	7.1	ND (5.1)	ND (5.1)	ND (5.1)	20
	01/12/11	1 - 2	N	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	35	50	94	76	25	57	34	71	ND (10)	66	ND (10)	15	66	**100**
AOC19-OS2	01/12/11	0 - 0.5	N	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	35	ND (10)	ND (10)	26	ND (10)	ND (10)	28	ND (10)	ND (10)	ND (10)	35
	01/12/11	1 - 2	N	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	19	34	42	ND (10)	21	22	20	ND (10)	35	ND (10)	ND (10)	20	48
AOC19-OS3	01/12/11	0 - 0.5	N	ND (5.1)	5.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.9
	01/12/11	1 - 2	N	ND (5.2)	6.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.3	21	5.9	ND (5.2)	17	ND (5.2)	ND (5.2)	19	ND (5.2)	ND (5.2)	ND (5.2)	23
AOC19-OS4	01/12/11	0 - 0.5	N	ND (5.3)	5.6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.1
	01/12/11	1 - 2	N	ND (5.3)	5.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.4

TABLE 3-28c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-28d

Sample Results: General Chemistry Parameters
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**pH**
Category 1				
AOC19-10	12/16/15	0 - 0.5	N	9.6
	12/16/15	2 - 3	N	9.5
AOC19-11	03/10/16	0 - 1	N	9
	03/10/16	2 - 3	N	9.1
	03/10/16	2 - 3	FD	9.1
AOC19-5	12/06/15	0 - 0.5	N	9.4
	12/06/15	2 - 3	N	9.7
AOC19-6	01/23/16	0 - 0.5	N	8.9
	01/23/16	2 - 3	N	9.2
AOC19-7	01/23/16	0 - 0.5	N	9.5
	01/23/16	0 - 0.5	FD	9.4
	01/23/16	2 - 3	N	9.7
AOC19-8	12/16/15	0 - 0.5	N	10
	12/16/15	2 - 3	N	10
	12/16/15	5 - 6	N	9.8
	12/16/15	9 - 10	N	9.7
AOC19-9	12/05/15	0 - 0.5	N	9.1
	12/05/15	2 - 3	N	8.9
	12/06/15	5 - 6	N	9.5
AOC19-OS1	01/12/11	0 - 0.5	N	9.7
	01/12/11	1 - 2	N	9.8
AOC19-OS10	12/04/13	0 - 0.5	N	9
	12/04/13	2 - 3	N	9.4
AOC19-OS2	01/12/11	0 - 0.5	N	10
	01/12/11	1 - 2	N	9.9
AOC19-OS3	01/12/11	0 - 0.5	N	8.7
	01/12/11	1 - 2	N	8.5
AOC19-OS4	01/12/11	0 - 0.5	N	8.9
	01/12/11	1 - 2	N	9.1
AOC19-OS7	12/04/13	0 - 0.5	N	9.5
	12/04/13	2 - 3	N	9.7
AOC19-OS8	12/04/13	0 - 0.5	N	8.4
	12/04/13	2 - 3	N	8.4

Notes:

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Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-28e

Sample Results: Pesticides
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC19-10	01/22/17	5 - 5.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC19-12	01/21/17	2 - 3	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-28f

Sample Results: Polychlorinated Biphenyls
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Commercial Screening Level [1] :	27,000	830	720	950	950	970	990	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
Category 1											
AOC19-10	12/16/15	0 - 0.5	N	18 R	35 R	18 R	18 R	18 R	18 R	31 J	58 JR
	12/16/15	2 - 3	N	18 R	36 R	18 R	18 R	18 R	18 R	18 R	36 R
AOC19-11	03/10/16	0 - 1	N	ND (17) J	ND (33) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (17) J	ND (34)
AOC19-12	01/21/17	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18) J	97	ND (18)	124
	01/21/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/21/17	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/21/17	4 - 5	N	ND (17)	ND (33)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
AOC19-13	01/22/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/22/17	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18) J	ND (18)	ND (18)	ND (36)
	01/22/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
AOC19-14	01/21/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/21/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/21/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/21/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
AOC19-15	01/21/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
	01/21/17	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18) J	ND (18)	ND (18)	ND (36)
	01/21/17	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	ND (34)
AOC19-5	12/06/15	2 - 3	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	34 R
AOC19-6	01/23/16	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	34 R
AOC19-7	01/23/16	0 - 0.5	N	19 R	38 R	19 R	19 R	19 R	47 J	34 J	100 JR
	01/23/16	2 - 3	N	19 R	38 R	19 R	19 R	19 R	19 R	19 R	38 R
AOC19-8	12/16/15	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	34 R

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

TABLE 3-28f

Sample Results: Polychlorinated Biphenyls
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-28g
Sample Results: Dioxins and Furans
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC19-10	12/16/15	0 - 0.5	N	31,000 J	1,500 J	120 J	63 J	81 J	420 J	37 J	97 J	28 J	21 J	23 J	ND (2,000) J	21 J	ND (4.1) J	6.5 J	320,000 J	4,500 J	**630**
	12/16/15	2 - 3	N	3,500 J	180 J	15 J	7.9 J	21 J	63 J	9.4 J	15 J	5.3 J	ND (3.4) J	4.6 J	ND (370) J	6.3 J	ND (0.7) J	2.6 J	35,000 J	470 J	**83**
AOC19-11	03/10/16	0 - 1	N	23 J	1.7 J	ND (0.2) J	ND (0.48) J	ND (0.28) J	ND (0.74) J	ND (0.27) J	ND (0.62) J	ND (0.33) J	ND (0.3) J	ND (0.09) J	ND (2) J	ND (0.24) J	ND (0.075) J	ND (0.21) J	240 J	ND (2.3) J	0.79
AOC19-12	01/21/17	0 - 0.5	N	1,500	55	ND (5.2)	3.4 J	8.9 J	24	6.1 J	7.2 J	2.7 J	ND (2.2)	2.7 J	ND (110)	5.6 J	ND (0.15)	3.1 J	14,000	80	**34**
	01/21/17	2 - 3	N	ND (4.6)	1.3 J	ND (0.93)	ND (0.54)	ND (0.39)	ND (0.75)	ND (0.39)	ND (0.79)	0.65 J	0.44 J	0.39 J	ND (0.93)	ND (0.18)	ND (0.12)	ND (0.11)	ND (20)	ND (1.5)	0.84
	01/21/17	2 - 3	FD	ND (2.6)	ND (0.61)	ND (0.73)	ND (0.2)	ND (0.32)	ND (0.63)	ND (0.16)	ND (0.33)	ND (0.4)	ND (0.35)	ND (0.22)	ND (0.53)	ND (0.11)	ND (0.089)	ND (0.15)	ND (14)	ND (0.59)	ND (0.4)
	01/21/17	4 - 5	N	16	2 J	ND (1.6)	ND (0.66)	ND (0.65)	ND (0.82)	0.39 J	ND (0.7)	ND (0.71)	ND (0.34)	ND (0.34)	ND (2.7)	ND (0.93)	ND (0.081)	ND (0.34)	120	ND (2.8)	0.95
AOC19-13	01/22/17	0 - 0.5	N	90	8.7 J	ND (0.65)	1 J	ND (0.73)	ND (2.8)	ND (0.77)	2.6 J	ND (0.14)	ND (0.96)	ND (0.28)	ND (12)	ND (0.72)	ND (0.13)	ND (0.38)	690	14 J	3.1
	01/22/17	2 - 3	N	ND (12)	2.3 J	ND (1.1)	0.58 J	ND (0.48)	ND (0.87)	0.56 J	ND (0.95)	0.69 J	0.58 J	ND (0.37)	ND (1.9)	ND (0.39)	ND (0.15)	ND (0.16)	95	ND (3.6)	1.2
	01/22/17	5 - 6	N	ND (2.2)	ND (0.9)	ND (0.82)	0.43 J	ND (0.36)	ND (0.29)	0.47 J	0.76 J	0.58 J	0.31 J	ND (0.18)	ND (0.5)	ND (0.22)	ND (0.14)	ND (0.11)	ND (11)	ND (1.5)	0.72
AOC19-14	01/21/17	0 - 0.5	N	180 J	13	ND (1.1)	2.2 J	ND (1.1)	5.5 J	ND (1.3) J	3.6 J	ND (0.25)	1.5 J	ND (0.58)	ND (18)	ND (1.2)	ND (0.2)	ND (0.17)	1,500 J	17 J	**6.4**
	01/21/17	0 - 0.5	FD	93 J	ND (5.6)	ND (1.3)	1.4 J	ND (0.28)	3.2 J	1.2 J	ND (2.3)	ND (0.32)	1.4 J	ND (0.44)	ND (9.5)	1.4 J	ND (0.095)	ND (0.14)	800 J	7.7 J	4.3
	01/21/17	2 - 3	N	21	ND (2)	0.64 J	0.51 J	ND (0.32)	ND (0.77)	0.46 J	ND (1)	ND (0.61)	ND (0.18)	ND (0.28)	ND (2.8)	ND (0.19)	ND (0.059)	ND (0.076)	150	3.7 J	0.8
	01/21/17	5 - 6	N	6.1 J	ND (0.96)	0.47 J	ND (0.09)	ND (0.082)	ND (0.088)	ND (0.075)	ND (0.39)	ND (0.32)	ND (0.37)	ND (0.098)	ND (0.89)	ND (0.061)	ND (0.071)	ND (0.071)	60	2.1 J	0.42
AOC19-15	01/21/17	0 - 0.5	N	32	ND (3.3)	ND (0.57)	ND (0.22)	0.47 J	ND (0.22)	ND (0.32)	0.75 J	ND (0.36)	0.43 J	ND (0.22)	ND (6.9)	ND (0.29)	ND (0.034)	ND (0.084)	450	6.3 J	1.5
	01/21/17	2 - 3	N	5.9 J	ND (1.1)	ND (1.1)	ND (0.46)	ND (0.083)	0.61 J	ND (0.42)	ND (0.15)	ND (0.36)	ND (0.14)	ND (0.09)	ND (0.84)	ND (0.095)	ND (0.078)	ND (0.32)	42	ND (1.9)	0.4
	01/21/17	5 - 6	N	ND (6.4)	1.3 J	ND (0.73)	ND (0.36)	ND (0.36)	ND (0.12)	ND (0.74)	0.74 J	ND (0.44)	ND (0.075)	ND (0.31)	ND (1)	ND (0.32)	ND (0.067)	ND (0.11)	41	ND (2.5)	0.42
AOC19-5	12/06/15	2 - 3	N	270 J	13 J	ND (0.73) J	2.5 J	ND (0.26) J	4.8 J	ND (0.2) J	2.4 J	ND (0.24) J	ND (0.69) J	0.74 J	ND (22) J	ND (0.53) J	ND (0.087) J	ND (0.21) J	3,100 J	21 J	**6.4**
AOC19-6	01/23/16	0 - 0.5	N	220 J	ND (21) J	ND (2.6) J	ND (2.8) J	ND (1.7) J	ND (6) J	ND (1.6) J	ND (2.6) J	ND (2) J	ND (2.1) J	ND (0.79) J	ND (33) J	ND (0.82) J	ND (0.56) J	ND (0.8) J	2,100 J	41 J	**7**
AOC19-7	01/23/16	0 - 0.5	N	180 J	ND (3.1) J	ND (3.5) J	ND (3.5) J	ND (3.2) J	ND (3.5) J	ND (3.1) J	ND (3.3) J	ND (3.7) J	ND (2.8) J	ND (1) J	20 J	ND (1.1) J	ND (1.2) J	ND (1) J	1,600 J	ND (20) J	**7.6**
	01/23/16	2 - 3	N	ND (5.7) J	0.99 J	ND (0.29) J	ND (0.15) J	ND (0.3) J	ND (0.15) J	ND (0.28) J	ND (0.14) J	ND (0.34) J	ND (0.17) J	ND (0.2) J	ND (1.8) J	ND (0.11) J	ND (0.049) J	ND (0.099) J	49 J	ND (1) J	0.35
AOC19-8	12/16/15	0 - 0.5	N	160 J	11 J	ND (0.7) J	ND (1) J	1 J	ND (3.8) J	1.1 J	ND (2) J	ND (0.49) J	ND (0.83) J	ND (0.3) J	ND (10) J	1.1 J	ND (0.19) J	ND (0.26) J	1,100 J	15 J	4

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.

TABLE 3-28g
Sample Results: Dioxins and Furans
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-28h

Constituent Concentrations in Soil Compared to Screening Values
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences [4]	(BK)	# of Exceedences [5]	(ESL)	# of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	10	20 / 20 (100%)	630	7	(5.58)	NA	(NA)	1	(220)
Metals										
Antimony	mg/kg	25	7 / 54 (13%)	16	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	25	54 / 54 (100%)	6.6	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	25	54 / 54 (100%)	370	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	25	1 / 54 (1.9%)	0.5	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	25	10 / 54 (19%)	7.2	10	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	18	36 / 47 (77%)	31	26	(0.83)	NA	(NA)	11	(6.3)
Chromium, Hexavalent-STLC	mg/L	7	7 / 7 (100%)	4.5	NA	(NE)	NA	(NA)	NA	(NE)
Chromium, total	mg/L	25	7 / 7 (100%)	34	NA	(NE)	NA	(NA)	NA	(NE)
	mg/kg		54 / 54 (100%)	4,300	20	(39.8)			0	(170,000)
Cobalt	mg/kg	25	54 / 54 (100%)	8.2	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	25	52 / 54 (96%)	170	15	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	25	53 / 54 (98%)	890	25	(8.39)	NA	(NA)	5	(320)
Mercury	mg/kg	25	7 / 54 (13%)	6	NA	(NE)	NA	(NA)	2	(4.5)
Molybdenum	mg/kg	25	35 / 54 (65%)	510	33	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	25	54 / 54 (100%)	15	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	25	1 / 54 (1.9%)	2	1	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	25	1 / 54 (1.9%)	0.99	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	25	8 / 54 (15%)	2.2	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	25	54 / 54 (100%)	26	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	25	54 / 54 (100%)	480	16	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	4	6 / 6 (100%)	5,600	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	4	6 / 6 (100%)	25,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	4	6 / 6 (100%)	14,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	4	6 / 6 (100%)	5,300	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	4	6 / 6 (100%)	170	0	(402)	NA	(NA)	0	(6,900)

TABLE 3-28h

Constituent Concentrations in Soil Compared to Screening Values
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Potassium	mg/kg	4	6 / 6 (100%)	1,400	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	4	6 / 6 (100%)	1,400	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	4	0 / 6 (0%)	ND (1) ‡	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	14	8 / 28 (29%)	5.8	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	14	13 / 29 (45%)	6.6	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	14	8 / 29 (28%)	5.8	NA	(NE)	NA	(NA)	0	(45,000,000)
Acenaphthylene	µg/kg	14	8 / 29 (28%)	5.8	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	14	8 / 29 (28%)	14	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	14	14 / 29 (48%)	220	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	14	17 / 29 (59%)	260	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	14	20 / 29 (69%)	460	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	14	17 / 29 (59%)	210	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	14	16 / 29 (55%)	160	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	14	16 / 29 (55%)	200	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	14	13 / 29 (45%)	34	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	14	16 / 29 (55%)	450	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	14	8 / 29 (28%)	5.8	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	14	17 / 29 (59%)	160	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	14	8 / 29 (28%)	5.8	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	14	12 / 29 (41%)	140	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	14	16 / 29 (55%)	410	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	14	23 / 29 (79%)	350	4	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1016	µg/kg	10	7 / 20 (35%)	19	NA	(NE)	NA	(NA)	0	(27,000)
Aroclor 1221	µg/kg	10	7 / 20 (35%)	38	NA	(NE)	NA	(NA)	0	(830)
Aroclor 1232	µg/kg	10	7 / 20 (35%)	19	NA	(NE)	NA	(NA)	0	(720)

TABLE 3-28h

Constituent Concentrations in Soil Compared to Screening Values
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Polychlorinated biphenyls										
Aroclor 1242	µg/kg	10	7 / 20 (35%)	19	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1248	µg/kg	10	7 / 20 (35%)	19	NA	(NE)	NA	(NA)	0	(950)
Aroclor 1254	µg/kg	10	8 / 20 (40%)	97	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	10	7 / 20 (35%)	34	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	10	8 / 20 (40%)	124	NA	(NE)	NA	(NA)	0	(940)

TABLE 3-28h

Constituent Concentrations in Soil Compared to Screening Values
AOC 19 – Former Cooling Liquid Mixing and Hotwell Area
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-29a

Sample Results: Metals
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				470	0.36	220,000	210	7.3	6.3	170,000	350	47,000	320	4.5	5,800	3,100	5,800	1,500	12	1,000	350,000
Background [2]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic [3]	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Category 1																					
AOC20-OS08	12/18/16	0 - 0.5	N	ND (2) J	4.6	180	ND (1)	**1.2**	**1.3**	**88**	6.3	**140**	**63**	0.17	**1.9 J**	15	ND (1) J	ND (1)	ND (2) J	24	**170**
	12/18/16	4 - 5	N	ND (2.3) J	4.9	110	ND (1.2)	**1.3**	ND (0.23)	**50**	12	**31**	5.8	ND (0.12)	ND (1.2)	**35**	ND (1.2) J	ND (1.2)	ND (2.3) J	49	52
AOC20-OS09	12/20/16	0 - 0.5	N	ND (2.1) J	6.2	180	ND (1)	ND (1)	**2.4**	**70**	6.8	**30**	**50**	ND (0.1)	**10**	12	ND (1) J	ND (1)	ND (2.1)	30	**130**
	12/20/16	4 - 5	N	ND (2.1) J	3.9	180 J	ND (1)	ND (1)	0.63	18	5.6	10	8.2	ND (0.1)	ND (1)	7.7	ND (1) J	ND (1)	ND (2.1)	23	47
	12/20/16	4 - 5	FD	ND (2.1) J	4.3	130 J	ND (1)	ND (1)	0.78	21	5.8	9.6	**9**	ND (0.1)	ND (1)	8.3	ND (1) J	ND (1)	ND (2.1)	26	48
AOC20-1	01/26/16	0 - 1	N	ND (2.1)	2.9	100	ND (1.1)	ND (1.1)	0.32	12	4	11	8.3	ND (0.1)	ND (1.1)	8.5	ND (1.1)	ND (1.1)	ND (2.1)	16	31
	01/26/16	2 - 3	N	ND (2.1)	3.5	84	ND (1.1)	ND (1.1)	ND (0.21)	11	4	6.9	4.2	ND (0.11)	ND (1.1)	9	ND (1.1)	ND (1.1)	ND (2.1)	18	23
	01/26/16	2 - 3	FD	ND (2.1)	3	79	ND (1.1)	ND (1.1)	ND (0.21)	13	4.3	6.4	3.2	ND (0.11)	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.1)	20	23
AOC20-OS11	12/21/16	0 - 0.5	N	ND (2) J	4.5	130	ND (1)	ND (1)	ND (0.2)	20	6	10	6.1	ND (0.1)	ND (1)	11	ND (1) J	ND (1)	ND (2)	28	39
	12/21/16	2 - 3	N	ND (2.1) J	4.6	150	ND (1.1)	ND (1.1)	ND (0.21)	19	6	9.5	5.5	ND (0.11)	ND (1.1)	12	ND (1.1) J	ND (1.1)	ND (2.1)	28	31
	12/21/16	6 - 7	N	ND (2.2) J	4.3	150	ND (1.1)	ND (1.1)	0.23	13	4.7	7.4	6.6	ND (0.11)	ND (1.1)	8.6	ND (1.1) J	ND (1.1)	ND (2.2)	22	25
AOC20-OS12	12/21/16	0 - 0.5	N	ND (2) J	5.9	130	ND (1)	ND (1)	**5.1**	**140**	5.9	**29**	**42**	ND (0.1)	**44**	11	ND (1) J	ND (1)	ND (2)	25	**260**
	12/21/16	2 - 3	N	ND (2.1) J	6.8	130	ND (1.1)	ND (1.1)	**3.6**	**220**	3.8	**28**	**78**	ND (0.11)	**1.6**	7.4	ND (1.1) J	ND (1.1)	ND (2.1)	26	**280**
	12/21/16	5 - 6	N	ND (2.1) J	3.6	91	ND (1)	ND (1)	0.28	17	2.5	4.3	5.6	ND (0.1)	ND (1)	3.9	ND (1) J	ND (1)	ND (2.1)	13	25
AOC20-OS13	12/21/16	0 - 0.5	N	ND (2) J	6.3	150	ND (1)	ND (1)	**1.6**	38	6.1	**19**	**21**	ND (0.1)	ND (1)	14	ND (1) J	ND (1)	ND (2)	30	**78**
	12/21/16	2 - 3	N	ND (2.2) J	4.9	120	ND (1.1)	ND (1.1)	**1**	**58**	7.4	**22**	**21 J**	ND (0.11)	ND (1.1)	21 J	ND (1.1) J	ND (1.1)	ND (2.2)	34	**85**
	12/21/16	2 - 3	FD	ND (2.2) J	4.6	140	ND (1.1)	ND (1.1)	**1.1**	**58**	8.6	**22**	**29 J**	ND (0.11)	ND (1.1)	26 J	ND (1.1) J	ND (1.1)	ND (2.2)	36	**92**
	12/21/16	5 - 6	N	ND (2.2) J	4.3	76	ND (1.1)	ND (1.1)	0.53	**50**	11	**20**	**11**	ND (0.11)	ND (1.1)	**29**	ND (1.1) J	ND (1.1)	ND (2.2)	44	58
AOC20-OS14	12/19/16	0 - 0.5	N	ND (2.1) J	3	84	ND (1)	ND (1)	0.27	17	5.4	11	7.3	0.14	ND (1)	11	ND (1) J	ND (1)	ND (2.1) J	23	33
	12/19/16	2 - 3	N	ND (2.1) J	2.4	41	ND (1)	ND (1)	ND (0.21)	4	2.6	4.9	2	ND (0.1)	ND (1)	3.3	ND (1) J	ND (1)	ND (2.1) J	9.3	9.9
	12/20/16	6 - 7	N	ND (2.1) J	3	56	ND (1)	ND (1)	0.25	7.9	2.1	11	5.4	ND (0.1)	ND (1)	3.1	ND (1) J	ND (1)	ND (2.1) J	9.3 J	22
	12/20/16	6 - 7	FD	ND (2.1) J	3.5	60	ND (1)	ND (1)	ND (0.21)	8.6	3.1	9.8	2.9	ND (0.1)	ND (1)	5.1	ND (1) J	ND (1)	ND (2.1) J	13 J	19
AOC20-OS16	12/19/16	0 - 0.5	N	ND (2.1) J	4.1	100	ND (1.1)	ND (1.1)	ND (0.21)	21	9	12	6.7	ND (0.1)	ND (1.1)	17	ND (1.1) J	ND (1.1)	ND (2.1) J	35	35
	12/19/16	2 - 3	N	ND (2.1) J	3.3	120	ND (1)	ND (1)	ND (0.21)	10	3.7	5.8	4.5	ND (0.1)	ND (1)	7.4	ND (1) J	ND (1)	ND (2.1) J	18	20
	12/19/16	5 - 6	N	ND (2.1) J	3.5	85	ND (1.1)	ND (1.1)	ND (0.21)	8.3	3	5.2	4.5	ND (0.11)	ND (1.1)	6.1	ND (1.1) J	ND (1.1)	ND (2.1) J	15	18
	12/19/16	9 - 9.5	N	ND (2.2) J	2.7	68 J	ND (1.1)	ND (1.1)	**1.4**	**63**	1.8	15	7.1 J	ND (0.11)	**7.1 J**	3.5	ND (1.1) J	ND (1.1)	ND (2.2) J	9.3 J	**97 J**
	12/19/16	9 - 9.5	FD	ND (2.2) J	3.3	100 J	ND (1.1)	ND (1.1)	**1.4**	**70**	2.7	**17**	**9 J**	ND (0.11)	**8.8 J**	5.1	ND (1.1) J	ND (1.1)	ND (2.2) J	14 J	**130 J**
AOC20-OS18	12/17/16	0 - 0.5	N	ND (2.1) J	3.1	80	ND (1)	ND (1)	ND (0.21)	11	4.4	11	3.5	ND (0.1)	ND (1)	8.7	ND (1) J	ND (1)	ND (2.1) J	17	20
	12/17/16	3 - 3.5	N	ND (2) J	3.3	54	ND (1)	ND (1)	ND (0.2)	4.9	1.9	2.8	2	ND (0.1)	ND (1)	3.7	ND (1) J	ND (1)	ND (2) J	9.9	9.1
AOC20-2	12/18/15	0 - 1	N	ND (2.1)	3	100	ND (1)	ND (1)	ND (0.21)	11	3.7	9.9	2.9	ND (0.11)	ND (1)	8.4	ND (1)	ND (1)	ND (2.1)	16	19
	12/18/15	2 - 3	N	ND (2.2)	4.8	210	ND (1.1)	ND (1.1)	ND (0.22)	17	4.8	12	4.2	ND (0.11)	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.2)	24	26
	12/18/15	5 - 6	N	ND (2.1)	3.1	110	ND (1.1)	ND (1.1)	ND (0.21)	11	3.6	7.7	3.5	ND (0.11)	ND (1.1)	7.3	ND (1.1)	ND (1.1)	ND (2.1)	17	18
	12/18/15	9 - 10	N	ND (2.1)	3.1	78	ND (1)	ND (1)	ND (0.21)	8.6	3.9	8.5	5.8	ND (0.1)	ND (1)	7.4	ND (1)	ND (1)	ND (2.1)	17	27
AOC20-OS21	12/20/16	0 - 0.5	N	ND (2) J	4.4	110	ND (1)	ND (1)	ND (0.2)	16	5.5	12	**10**	ND (0.1)	ND (1)	9.7	ND (1) J	ND (1)	ND (2) J	23	32
	12/20/16	2 - 3	N	ND (2.1) J	4.3	120	ND (1)	ND (1)	ND (0.21)	15	4.9	16	**11**	ND (0.1)	ND (1)	8.8	ND (1) J	ND (1)	ND (2.1)	26	31
	12/20/16	5 - 6	N	ND (2.1) J	4	89	ND (1)	ND (1)	0.21	9.6	3.1	7.1	4.5	ND (0.1)	1.1	4.7	ND (1) J	ND (1)	ND (2.1)	19	17
	12/20/16	8.5 - 9	N	ND (2.1) J	3.9	140	ND (1)	ND (1)	**0.97**	**51 J**	3.4	15	**10 J**	ND (0.1)	**10**	5.8 J	ND (1) J	ND (1)	ND (2.1)	19	**68 J**
	12/20/16	8.5 - 9	FD	ND (2.1) J	4.4	150	ND (1)	ND (1)	**0.92**	**64 J**	4	**17**	**13 J**	ND (0.1)	**12**	7.8 J	ND (1) J	ND (1)	ND (2.1)	23	**84 J**

TABLE 3-29a
Sample Results: Metals
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC20-3	12/18/15	0 - 1	N	ND (2.1)	4.7	94	ND (1)	ND (1)	0.7	36	3.8	9.1	**8.6**	ND (0.1)	1.2	7.8	ND (1)	ND (1)	ND (2.1)	18	40
	12/18/15	2 - 3	N	ND (2.1)	3.9	75	ND (1)	ND (1)	0.22	13	2.9	5.8	7.2	ND (0.1)	ND (1)	6.1	ND (1)	ND (1)	ND (2.1)	16	25
	12/18/15	7 - 8	N	ND (2)	2.4	17	ND (1)	ND (1)	ND (0.2)	2.5	ND (1)	2.2	1.2	ND (0.1)	ND (1)	1.7	ND (1)	ND (1)	ND (2)	5.6	6
AOC20-4	12/15/15	0 - 1	N	ND (2.1)	3.1	150	ND (1)	ND (1)	ND (0.21)	12 J	5.8	**19 J**	4.5	ND (0.1)	ND (1)	9	ND (1)	ND (1)	ND (2.1)	20	32
	12/15/15	0 - 1	FD	ND (2)	3.4	130	ND (1)	ND (1)	ND (0.21)	15 J	5.3	**27 J**	5	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2)	21	36
	12/15/15	1.9 - 2	N	ND (2)	4.4	130	ND (1)	**1.6**	ND (0.2)	24	7	**71**	**17**	ND (0.1)	**2.6**	15	ND (1)	ND (1)	ND (2)	23	**210**
	12/15/15	2 - 3	N	ND (2)	3.1	110	ND (1)	ND (1)	ND (0.2)	13	4.6	7.6	5.2	ND (0.1)	ND (1)	9.2	ND (1)	ND (1)	ND (2)	19	27
AOC20-5	12/15/15	0 - 1	N	ND (2.1)	4.2	120	ND (1)	ND (1)	0.27	18	4.7	12	5.9	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	20	32
	12/15/15	2 - 3	N	ND (2.1)	4.2	87	ND (1)	ND (1)	0.44	14	4.2	5.8	4.8	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	18	26
AOC20-6	12/15/15	0 - 1	N	ND (2.1)	3.7	120	ND (1)	ND (1)	ND (0.21)	14	5.2	9.3	8.2	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	22	29
	12/15/15	2 - 3	N	ND (2.1)	3.4	110	ND (1)	ND (1)	ND (0.21)	14	4.7	8.1	4.3	ND (0.1)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	19	27
AOC20-7	12/18/15	0 - 1	N	ND (2.1)	2.5	80	ND (1)	ND (1)	ND (0.21)	10	4.6	**22**	4	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	19	18
	12/18/15	2 - 3	N	ND (2.1)	2.3	86	ND (1)	ND (1)	ND (0.21)	10	3.8	7.2	2.5	ND (0.1)	ND (1)	8.2	ND (1)	ND (1)	ND (2.1)	15	18
	12/18/15	5 - 5.5	N	ND (2)	3	53	ND (1)	ND (1)	ND (0.2)	3.2	1.4	2.2	1.9	ND (0.1)	ND (1)	3	ND (1)	ND (1)	ND (2)	8.2	8.7

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-29b
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
Category 1																						
AOC20-OS08	12/18/16	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	24	340	440	720	230	280	500	ND (5)	850	ND (5)	230	ND (5)	210	830	**570**
	12/18/16	4 - 5	N	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (6.7)
AOC20-OS09	12/20/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	14	130	200	300	130	160	190	ND (5.1)	450	ND (5.1)	110	ND (5.1)	150	390	**260**
	12/20/16	4 - 5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	25	36 J	56	8.3 J	33 J	39	ND (5.2)	71	ND (5.2)	8.3 J	ND (5.2)	21	63	48
	12/20/16	4 - 5	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	37	66	100	52	55 J	60	ND (5.2)	98	ND (5.2)	16 J	ND (5.2)	28	90	**85**
AOC20-1	01/26/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.6	ND (53)	ND (53)	ND (53)	ND (53)	7.4	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	10	**59**
	01/26/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (60)
	01/26/16	2 - 3	FD	5.4	5.4	5.4	5.4	5.4	5.4	ND (54)	ND (54)	ND (54)	ND (54)	5.4	ND (54)	5.4	5.4	ND (54)	5.4	5.4	5.4	**60**
AOC20-OS11	12/21/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.5	17	30	8.1	13	16	ND (5.1)	20	ND (5.1)	7.8	ND (5.1)	ND (5.1)	20	24
	12/21/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	8.8	16	28	6	14	14	ND (5.3)	16	ND (5.3)	5.7	ND (5.3)	ND (5.3)	17	23
	12/21/16	6 - 7	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	8	5.8	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.8	6.8
AOC20-OS12	12/21/16	0 - 0.5	N	5.1	5.1	ND (5.1)	ND (5.1)	6.1	61	85	160	88	71	79	ND (5.1)	130	ND (5.1)	71	ND (5.1)	43	120	**120**
	12/21/16	2 - 3	N	ND (5.3)	ND (5.3)	6.7	ND (5.3)	17	160	190	340	91	110 J	170	ND (5.3)	410	ND (5.3)	85	ND (5.3)	120	280	**250**
	12/21/16	5 - 6	N	57	88	430	ND (5.2)	660	2,000	1,200	1,900	130	940	1,800	ND (5.2)	5,600	320	170	1,100	4,900	4,300	**1,600**
AOC20-OS13	12/21/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	38	75	130	78	61	62	ND (5.1)	77	ND (5.1)	58	ND (5.1)	18	74	**100**
	12/21/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	37	58	98	58	58	52	ND (5.4)	94	ND (5.4)	16 J	ND (5.4)	32	84	**76**
	12/21/16	2 - 3	FD	ND (5.4)	5.4	ND (5.4)	ND (5.4)	ND (5.4)	50	75	130	68	65	69	ND (5.4)	120	ND (5.4)	57	ND (5.4)	44	110	**100**
	12/21/16	5 - 6	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	26	41	69	25	28	37	ND (5.4)	62	ND (5.4)	21	ND (5.4)	19	54	**56**
AOC20-OS14	12/19/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11	11 J	28 J	7.3 J	15 J	15	ND (5.2)	24	ND (5.2)	ND (5.2)	ND (5.2)	8	28	18
	12/19/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	12/20/16	6 - 7	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/20/16	6 - 7	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC20-OS16	12/19/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6	6.5
	12/19/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	12/19/16	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	12/19/16	9 - 9.5	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (6.4)
	12/19/16	9 - 9.5	FD	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (9.5)
AOC20-OS18	12/17/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.4 J	20 J	7.6 J	10 J	8.3	ND (5.2)	7.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8	15
	12/17/16	3 - 3.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	6.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1
AOC20-2	12/18/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9	12	ND (5.2)	5.2	5.9	ND (5.2)	5.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.6	10
	12/18/15	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	5.4	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.5
	12/18/15	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.2	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.3	6.8
	12/18/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
AOC20-OS21	12/20/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	55	84	160	24	54 J	59	ND (5.1)	77	ND (5.1)	24	ND (5.1)	11	76	**110**
	12/20/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	17	28	56	8.6	25 J	23	ND (5.2)	29	ND (5.2)	8.6	ND (5.2)	5.2	29	39
	12/20/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	6.8	13	ND (5.1)	6.8 J	7.9	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	12
	12/20/16	8.5 - 9	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	11 J	ND (5.2)	5.9 J	ND (5.2)	ND (5.2)	7 J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.3 J	6.9
	12/20/16	8.5 - 9	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9 J	13 J	5.2 J	6.3 J	ND (5.2)	ND (5.2)	7.3 J	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7 J	10

TABLE 3-29b
Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level [1] :				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background [2] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
AOC20-3	12/18/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	63	96	170	55	62	110	ND (52)	200	ND (5.2)	52	ND (5.2)	61	170	**150**
	12/18/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	31	ND (52)	58	ND (52)	ND (52)	43	ND (52)	86	ND (5.2)	ND (52)	ND (5.2)	22	75	**64**
	12/18/15	7 - 8	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.5	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.8	6.3
AOC20-4	12/15/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	17	21	39	6.5	16	22	ND (5.2)	41 J	ND (5.2)	6.5	ND (5.2)	14	38 J	30
	12/15/15	0 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	7.2	ND (51)	11 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	10 J	**57**
	12/15/15	1.9 - 2	N	110 J	190 J	9 J	ND (5)	19 J	160	160	320	70	73	220	ND (50)	460	ND (5)	70	32 J	180 J	400	**240**
	12/15/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	11	ND (5.1)	ND (5.1)	5.4	ND (5.1)	6.8	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	6.8	9.6
AOC20-5	12/15/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	6.2	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	6.2	**58**
	12/15/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	8.2	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	7.9	**57**
AOC20-6	12/15/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	8.5 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	7.8 J	**59**
	12/15/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	5.2	**58**
AOC20-7	12/18/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	12/18/15	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND (58)
	12/18/15	5 - 5.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)

TABLE 3-29b

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-29c
Sample Results: Semivolatile and Volatile Organic Compounds
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Commercial Screening Level [1]:	2,500,000	2,500,000
			Background [2]:	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Xylene, m,p-	Xylenes, total
Category 1					
AOC20-OS08	12/18/16	0 - 0.5	N	ND (8.3)	ND (8.3)
	12/18/16	4 - 5	N	ND (6.1)	ND (6.1)
AOC20-OS09	12/20/16	0 - 0.5	N	ND (6.7)	ND (6.7)
	12/20/16	4 - 5	N	ND (7.5)	ND (7.5)
	12/20/16	4 - 5	FD	ND (6.6)	ND (6.6)
AOC20-1	01/26/16	2 - 3	N	ND (6.8)	ND (6.8)
	01/26/16	2 - 3	FD	ND (6.7)	ND (6.7)
AOC20-OS11	12/21/16	0 - 0.5	N	ND (6.6)	ND (6.6)
	12/21/16	2 - 3	N	ND (7.7)	ND (7.7)
	12/21/16	6 - 7	N	ND (7.3)	ND (7.3)
AOC20-OS12	12/21/16	0 - 0.5	N	ND (8.3)	ND (8.3)
	12/21/16	2 - 3	N	ND (6.9)	ND (6.9)
	12/21/16	5 - 6	N	ND (8.6)	ND (8.6)
AOC20-OS13	12/21/16	0 - 0.5	N	ND (6.9)	ND (6.9)
	12/21/16	2 - 3	N	ND (8.6)	ND (8.6)
	12/21/16	2 - 3	FD	ND (9.2)	ND (9.2)
	12/21/16	5 - 6	N	ND (8.1)	ND (8.1)
AOC20-OS14	12/19/16	0 - 0.5	N	12	17
	12/19/16	2 - 3	N	ND (6.6)	ND (6.6)
	12/20/16	6 - 7	N	ND (6.6)	ND (6.6)
	12/20/16	6 - 7	FD	ND (6.1)	ND (6.1)
AOC20-OS16	12/19/16	0 - 0.5	N	ND (7.8)	ND (7.8)
	12/19/16	2 - 3	N	ND (6.2)	ND (6.2)
	12/19/16	5 - 6	N	ND (6.7)	ND (6.7)
	12/19/16	9 - 9.5	N	ND (7.2)	ND (7.2)
	12/19/16	9 - 9.5	FD	ND (8.8)	ND (8.8)
AOC20-OS18	12/17/16	0 - 0.5	N	ND (6.3)	ND (6.3)
	12/17/16	3 - 3.5	N	ND (6.3)	ND (6.3)
AOC20-2	12/18/15	2 - 3	N	ND (6.2)	ND (6.2)
	12/18/15	5 - 6	N	ND (6.6)	ND (6.6)
	12/18/15	9 - 10	N	ND (6.1)	ND (6.1)
AOC20-OS21	12/20/16	0 - 0.5	N	ND (8.7)	ND (8.7)
	12/20/16	2 - 3	N	ND (6.1)	ND (6.1)
	12/20/16	5 - 6	N	ND (8.6)	ND (8.6)
	12/20/16	8.5 - 9	N	ND (5.8)	ND (5.8)
	12/20/16	8.5 - 9	FD	ND (8.2)	ND (8.2)
AOC20-3	12/18/15	2 - 3	N	ND (6.1)	ND (6.1)
	12/18/15	7 - 8	N	ND (6.8)	ND (6.8)
AOC20-4	12/15/15	2 - 3	N	ND (4.9)	ND (4.9)

TABLE 3-29c

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)	
			Commercial Screening Level [1]:	**2,500,000**	**2,500,000**
			Background [2]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Xylene, m,p-**	**Xylenes, total**
AOC20-5	12/15/15	2 - 3	N	ND (5.4)	ND (5.4)
AOC20-6	12/15/15	2 - 3	N	ND (6.4)	ND (6.4)
AOC20-7	12/18/15	2 - 3	N	ND (6.1)	ND (6.1)
	12/18/15	5 - 5.5	N	ND (6.5)	ND (6.5)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than tthe commercial screening level or RWQCB ESL are circled.
Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency
SVOCs	semivolatile organic compounds
VOCs	volatile organic compounds

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for SVOCs and VOCs.

TABLE 3-29d

Sample Results: Total Petroleum Hydrocarbons

AOC 20 – Industrial Floor Drains

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	1,100	140,000
			RWQCB Environmental Screening Level [2]:	230	11,000
			Background [3]:	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as diesel	TPH as motor oil
Category 1					
AOC20-OS08	12/18/16	0 - 0.5	N	59 J	280 J
	12/18/16	4 - 5	N	12 J	27 J
AOC20-OS09	12/20/16	0 - 0.5	N	29 J	88 J
	12/20/16	4 - 5	N	35 J	64 J
	12/20/16	4 - 5	FD	35 J	69 J
AOC20-1	01/26/16	0 - 1	N	32	140
	01/26/16	2 - 3	N	40	140
	01/26/16	2 - 3	FD	52	170
AOC20-OS11	12/21/16	0 - 0.5	N	11 J	15 J
	12/21/16	2 - 3	N	21 J	59 J
	12/21/16	6 - 7	N	14 J	19 J
AOC20-OS12	12/21/16	0 - 0.5	N	14 J	26 J
	12/21/16	2 - 3	N	15 J	37 J
	12/21/16	5 - 6	N	ND (10) J	ND (10) J
AOC20-OS13	12/21/16	0 - 0.5	N	15 J	30 J
	12/21/16	2 - 3	N	19 J	65 J
	12/21/16	2 - 3	FD	18 J	41 J
	12/21/16	5 - 6	N	23 J	78 J
AOC20-OS14	12/19/16	0 - 0.5	N	20 J	190 J
	12/19/16	2 - 3	N	ND (10) J	13 J
	12/20/16	6 - 7	N	28 J	270 J
	12/20/16	6 - 7	FD	14 J	120 J
AOC20-OS16	12/19/16	0 - 0.5	N	ND (11) J	13 J
	12/19/16	2 - 3	N	19 J	65 J
	12/19/16	5 - 6	N	35 J	85 J
	12/19/16	9 - 9.5	N	130 J	560 J
	12/19/16	9 - 9.5	FD	220 J	730 J
AOC20-OS18	12/17/16	0 - 0.5	N	ND (10) J	16 J
	12/17/16	3 - 3.5	N	ND (10) J	ND (10) J
AOC20-2	12/18/15	0 - 1	N	ND (10)	34
	12/18/15	2 - 3	N	ND (11)	68
	12/18/15	5 - 6	N	ND (11)	31
	12/18/15	9 - 10	N	ND (10)	ND (10)
AOC20-OS21	12/20/16	0 - 0.5	N	14 J	51 J
	12/20/16	2 - 3	N	21 J	97 J
	12/20/16	5 - 6	N	100 J	350 J
	12/20/16	8.5 - 9	N	130 J	840 J
	12/20/16	8.5 - 9	FD	180 J	870 J
AOC20-3	12/18/15	0 - 1	N	ND (10)	25
	12/18/15	2 - 3	N	ND (10)	12
	12/18/15	7 - 8	N	ND (10)	ND (10)

TABLE 3-29d

Sample Results: Total Petroleum Hydrocarbons
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
AOC20-4	12/15/15	0 - 1	N	ND (10)	55
	12/15/15	0 - 1	FD	ND (10)	34
	12/15/15	1.9 - 2	N	68	560
	12/15/15	2 - 3	N	ND (10)	33
AOC20-5	12/15/15	0 - 1	N	ND (10)	37
	12/15/15	2 - 3	N	39	180
AOC20-6	12/15/15	0 - 1	N	63	180
	12/15/15	2 - 3	N	ND (10)	42
AOC20-7	12/18/15	0 - 1	N	ND (10)	ND (10)
	12/18/15	2 - 3	N	ND (10)	ND (10)
	12/18/15	5 - 5.5	N	ND (10)	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-29e

Sample Results: Polychlorinated Biphenyls
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
		Commercial Screening Level[1] :		27,000	830	720	950	950	970	990	940
		Background [2]:		NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
Category 1											
AOC20-OS08	12/18/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	530	170	717
	12/18/16	4 - 5	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
AOC20-OS09	12/20/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	1,900 J	1,300 J	3,217
	12/20/16	4 - 5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	230 J	130 J	377
	12/20/16	4 - 5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	560 J	290 J	867
AOC20-1	01/26/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	28	ND (17)	53.5
	01/26/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/26/16	2 - 3	FD	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC20-OS11	12/21/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	33	ND (17)	58.5
	12/21/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	12/21/16	6 - 7	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC20-OS12	12/21/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	1,300	910	2,227
	12/21/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	2,800	1,700	4,517
	12/21/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	110	ND (17)	135.5
AOC20-OS13	12/21/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	150	67	234
	12/21/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	210 J	79	307
	12/21/16	2 - 3	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	380 J	120	518
	12/21/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	380	ND (18)	407
AOC20-OS14	12/19/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/19/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/20/16	6 - 7	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/20/16	6 - 7	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC20-OS16	12/19/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/19/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/19/16	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	12/19/16	9 - 9.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	54	81
	12/19/16	9 - 9.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	81	108

TABLE 3-29e
Sample Results: Polychlorinated Biphenyls
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
		Commercial Screening Level[1]:		27,000	830	720	950	950	970	990	940
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
AOC20-OS18	12/17/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/17/16	3 - 3.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC20-2	12/18/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/18/15	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	12/18/15	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	12/18/15	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC20-OS21	12/20/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	82	39	138
	12/20/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	34	ND (17)	59.5
	12/20/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/20/16	8.5 - 9	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	34	ND (17)	59.5
	12/20/16	8.5 - 9	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	33	ND (17)	58.5
AOC20-3	12/18/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	490	ND (17)	515.5
	12/18/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	190	ND (17)	215.5
	12/18/15	7 - 8	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC20-4	12/15/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/15/15	0 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	52	36	105
	12/15/15	1.9 - 2	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	91	64	172
	12/15/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC20-5	12/15/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	37	27	81
	12/15/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC20-6	12/15/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	22	55	94
	12/15/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	43	31	91
AOC20-7	12/18/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/18/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/18/15	5 - 5.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

TABLE 3-29e

Sample Results: Polychlorinated Biphenyls
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-29f

Sample Results: Dioxins and Furans
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
				Dioxin/Furans (ng/kg)																	
Commercial Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Category 1																					
AOC20-4	12/15/15	0 - 1	N	300 J	23 J	ND (1.9) J	ND (1.6) J	2.6 J	7.7 J	1.5 J	3.7 J	ND (0.66) J	ND (0.92) J	ND (0.91) J	ND (28) J	ND (0.71) J	ND (0.44) J	ND (0.9) J	3,400 J	77 J	**8.2**
	12/15/15	1.9 - 2	N	810 J	43 J	3.3 J	7.5 J	ND (2.6) J	20 J	4 J	12 J	ND (0.89) J	3.9 J	ND (0.77) J	ND (55) J	ND (1.4) J	ND (0.66) J	1.4 J	6,200 J	76 J	**22**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-29g

Constituent Concentrations in Soil Compared to Screening Values
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	1	2 / 2 (100%)	22	2	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	16	0 / 45 (0%)	ND (2.3) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	16	45 / 45 (100%)	6.8	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	16	45 / 45 (100%)	210	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	16	0 / 45 (0%)	ND (1.2) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	16	3 / 45 (6.7%)	1.6	3	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	16	20 / 45 (44%)	5.1	8	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	16	45 / 45 (100%)	220	9	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	16	44 / 45 (98%)	12	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	16	45 / 45 (100%)	140	13	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	16	45 / 45 (100%)	78	14	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	16	2 / 45 (4.4%)	0.17	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	16	9 / 45 (20%)	44	7	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	16	45 / 45 (100%)	35	2	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	16	0 / 45 (0%)	ND (1.2)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	16	0 / 45 (0%)	ND (1.2)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	16	0 / 45 (0%)	ND (2.3) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	16	45 / 45 (100%)	49	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	16	45 / 45 (100%)	280	9	(58)	NA	(NA)	0	(350,000)
Volatile Organic Compounds										
Xylene, m,p-	µg/kg	16	1 / 37 (2.7%)	12	NA	(NE)	NA	(NA)	0	(2,500,000)
Xylenes, total	µg/kg	16	1 / 37 (2.7%)	17	NA	(NE)	NA	(NA)	0	(2,500,000)
Polycyclic Aromatic Hydrocarbons										
1-Methyl naphthalene	µg/kg	16	4 / 45 (8.9%)	110	NA	(NE)	NA	(NA)	0	(73,000)
2-Methyl naphthalene	µg/kg	16	5 / 45 (11%)	190	NA	(NE)	NA	(NA)	0	(3,000,000)
Acenaphthene	µg/kg	16	4 / 45 (8.9%)	430	NA	(NE)	NA	(NA)	0	(45,000,000)

TABLE 3-29g

Constituent Concentrations in Soil Compared to Screening Values
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Polycyclic Aromatic Hydrocarbons										
Acenaphthylene	µg/kg	16	1 / 45 (2.2%)	5.4	NA	(NE)	NA	(NA)	0	(45,000,000)
Anthracene	µg/kg	16	8 / 45 (18%)	660	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	16	21 / 45 (47%)	2,000	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	16	22 / 45 (49%)	1,200	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	16	29 / 45 (64%)	1,900	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	16	21 / 45 (47%)	230	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	16	21 / 45 (47%)	940	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	16	24 / 45 (53%)	1,800	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	16	31 / 45 (69%)	5,600	NA	(NE)	NA	(NA)	0	(30,000,000)
Fluorene	µg/kg	16	2 / 45 (4.4%)	320	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	16	16 / 45 (36%)	230	NA	(NE)	NA	(NA)	0	(21,000)
Naphthalene	µg/kg	16	3 / 45 (6.7%)	1,100	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	16	17 / 45 (38%)	4,900	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	16	33 / 45 (73%)	4,300	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	16	35 / 45 (78%)	1,600	20	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	16	21 / 45 (47%)	2,800	NA	(NE)	NA	(NA)	3	(970)
Aroclor 1260	µg/kg	16	14 / 45 (31%)	1,700	NA	(NE)	NA	(NA)	2	(990)
Total PCBs	µg/kg	16	22 / 45 (49%)	4,517	NA	(NE)	NA	(NA)	3	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	16	26 / 45 (58%)	220	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	16	38 / 45 (84%)	870	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	16	0 / 37 (0%)	ND (1.6)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-29g

Constituent Concentrations in Soil Compared to Screening Values
AOC 20 – Industrial Floor Drains
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-30a
Sample Results: Metals
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC21-1	01/12/16	0 - 0.5	N	ND (2.1)	3.5	140	ND (1.1)	ND (1.1)	0.35	23	6.9	12	8	ND (0.11)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	26	45
	01/12/16 ⊖	2 - 3	N	ND (2.5)	2.8	170	ND (1.2)	ND (1.2)	0.71	35	7.6	11	1.8	ND (0.12)	ND (1.2)	17	ND (1.2)	ND (1.2)	ND (2.5)	32	30
	01/12/16	5 - 6	N	ND (2.8)	2.2	170	ND (1.4)	ND (1.4)	**2**	**40**	6.7	14	ND (1.4)	ND (0.14)	ND (1.4)	16	ND (1.4)	ND (1.4)	ND (2.8)	32	26
	01/11/17	9 - 10	N	ND (2)	ND (1) *	73	ND (1)	ND (1)	ND (0.2)	22	9.1	7.7	ND (1)	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	24	32
	01/11/17	14 - 15	N	---	---	---	---	---	ND (0.21)	---	---	---	---	---	---	---	---	---	---	---	---
AOC21-OS1	09/23/14	0 - 0.5	N	ND (2) J	3.2	130	ND (1)	ND (1) J	0.28	19 J	4.5 J	8.7	**12 J**	ND (0.099)	ND (1)	11	ND (1) J	ND (1) J	ND (2) J	24	36 J
	09/23/14	2 - 3	N	ND (2.6)	3	150	ND (1.3)	ND (1.3)	**0.84**	27	ND (1.3)	ND (2.6)	ND (1.3)	ND (0.13)	ND (1.3)	4.5	ND (1.3)	3.1	ND (2.6)	8.9	4.1
	09/23/14	2 - 3	FD	ND (2.7)	3.2	150	ND (1.3)	ND (1.3)	**0.89**	28	ND (1.3)	ND (2.7)	ND (1.3)	ND (0.14)	ND (1.3)	4.4	ND (1.3)	3.4	ND (2.7)	9.1	4.1
	09/23/14	5 - 6	N	ND (2.8)	3.7	110	ND (1.4)	ND (1.4)	**1.8**	24	2.3	3.8	ND (1.4)	ND (0.14)	ND (1.4)	6	ND (1.4)	1.7	ND (2.8)	17	17
AOC21-OS2	09/23/14	0 - 0.5	N	ND (2)	3.7	130	ND (1)	ND (1)	**1.2**	32	4.9	**98**	**41**	0.14	**2.2**	15	ND (1)	ND (1)	ND (2)	24	**90**
	09/23/14	1 - 1.5	N	ND (2)	2.8	95	ND (1)	ND (1)	0.51	19	4.2	12	**11**	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	22	52
AOC21-OS3	09/23/14	0 - 0.5	N	ND (2)	3.5	140	ND (1)	ND (1)	ND (0.2)	20	5.3	**18**	5.4	ND (0.1)	ND (1)	16	ND (1)	ND (1)	ND (2)	29	31
	09/23/14	2 - 3	N	ND (2.1)	3.9	120	ND (1)	ND (1)	ND (0.21)	16	4.5	12	5.2	ND (0.11)	ND (1)	12	ND (1)	ND (1)	ND (2.1)	26	28
AOC21-OS4	09/23/14	0 - 0.5	N	ND (2)	3	90	ND (1)	ND (1)	ND (0.2)	23	4.4	11	5.8	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2)	22	30
	09/23/14	2 - 3	N	ND (2.5)	2.8	110	ND (1.2)	ND (1.2)	**1.1**	21	ND (1.2)	ND (2.5)	ND (1.2)	ND (0.12)	ND (1.2)	3.9	ND (1.2)	3.3	ND (2.5)	6.7	5.4
AOC21-OS5	10/27/14	7 - 8	N	ND (2.1)	1.2	76	ND (1.1)	ND (1.1)	ND (0.21)	14	6.3	7.5	2.9	ND (0.11)	ND (1.1)	9.2	ND (1.1)	ND (1.1)	ND (2.1)	35	28 J
AOC21-OS6	10/27/14	8 - 9	N	ND (2.1)	ND (1) *	83	ND (1)	ND (1)	ND (0.21)	22	8	10	6.6	ND (0.1)	ND (1)	12	ND (1)	ND (1)	ND (2.1)	49	30
AOC21-OS7	10/27/14	3.5 - 4.5	N	ND (2)	2.2	93	ND (1)	ND (1)	ND (0.2)	19	5.7	7.7	3.9	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	34	29
AOC21-OS8	10/27/14	5 - 6	N	ND (2.1)	1.3	110	ND (1)	ND (1)	ND (0.2)	17	6.2	8	3.2	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2.1)	35	30
	10/27/14	5 - 6	FD	ND (2)	1.1	99	ND (1)	ND (1)	ND (0.2)	18	6	8.6	3.5	ND (0.1)	ND (1)	10	ND (1)	ND (1)	ND (2)	35	31
AOC21-OS9	10/27/14	5 - 6	N	ND (2)	1.2	90	ND (1)	ND (1)	ND (0.2)	16	6.4	8	3	ND (0.1)	ND (1)	9.7	ND (1)	ND (1)	ND (2)	33	29

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

[1] Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[2] CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

[3] Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-30b

Sample Results: Contract Laboratory Program Inorganics
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
		Commercial Screening Level[1]:		**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
		Background[2]:		**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC21-1	01/12/16	0 - 0.5	N	7,100	20,000	14,000	6,200	210	1,800	1,800	ND (0.214)
	01/12/16 ⊖	2 - 3	N	9,800	**100,000**	16,000	**15,000**	240	2,100	1,200	ND (0.247)
	01/12/16	5 - 6	N	9,900	**130,000**	15,000	**17,000**	220	2,200	2,000	ND (0.288)
	01/11/17	9 - 10	N	7,400	11,000 J	17,000	5,900	250	2,000 J	450 J	ND (0.206) J
AOC21-OS1	09/23/14	0 - 0.5	N	---	31,000	---	---	---	---	570	---
	09/23/14	2 - 3	N	---	**290,000**	---	---	---	---	**3,100**	---
	09/23/14	2 - 3	FD	---	**310,000**	---	---	---	---	**3,100**	---
	09/23/14	5 - 6	N	---	**220,000**	---	---	---	---	2,000	---
AOC21-OS2	09/23/14	0 - 0.5	N	---	20,000	---	---	---	---	400	---
	09/23/14	1 - 1.5	N	---	16,000	---	---	---	---	270	---
AOC21-OS3	09/23/14	0 - 0.5	N	---	36,000	---	---	---	---	570	---
	09/23/14	2 - 3	N	---	37,000	---	---	---	---	410	---
AOC21-OS4	09/23/14	0 - 0.5	N	---	17,000	---	---	---	---	700	---
	09/23/14	2 - 3	N	---	**260,000**	---	---	---	---	**3,400**	---
AOC21-OS5	10/27/14	7 - 8	N	---	12,000	---	---	---	---	720	---
AOC21-OS6	10/27/14	8 - 9	N	---	14,000	---	---	---	---	400	---
AOC21-OS7	10/27/14	3.5 - 4.5	N	---	36,000	---	---	---	---	610	---
AOC21-OS8	10/27/14	5 - 6	N	---	12,000	---	---	---	---	360	---
	10/27/14	5 - 6	FD	---	14,000	---	---	---	---	420	---
AOC21-OS9	10/27/14	5 - 6	N	---	11,000	---	---	---	---	280	---

TABLE 3-30b

Sample Results: Contract Laboratory Program Inorganics
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ϴ	white powder sample.
J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-30c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1] :				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC21-1	01/12/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	25	ND (53)	64	ND (53)	ND (53)	43	ND (53)	53	ND (5.3)	ND (53)	ND (5.3)	12	52	**65**
	01/12/16 ⊖	2 - 3	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (6.6)
	01/12/16	5 - 6	N	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (7.1)	ND (8.2)
	01/11/17	9 - 10	N	---	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (340)	ND (390)
AOC21-OS1	09/23/14	0 - 0.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (59)
	09/23/14	2 - 3	N	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (6.5)	ND (7.5)
	09/23/14	2 - 3	FD	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	6.7	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	7.7
	09/23/14	5 - 6	N	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (8.1)
AOC21-OS2	09/23/14	0 - 0.5	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	87	ND (50)	ND (50)	ND (50)	ND (50)	67	ND (50)	ND (50)	ND (50)	ND (50)	61	**64**
	09/23/14	1 - 1.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	54	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (7.3)	ND (51)	ND (51)	**62**
AOC21-OS3	09/23/14	0 - 0.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	51	120	ND (51)	ND (51)	51	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	**94**
	09/23/14	2 - 3	N	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	59	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (52)	ND (11)	ND (52)	ND (52)	**63**
AOC21-OS4	09/23/14	0 - 0.5	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (58)
	09/23/14	2 - 3	N	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (63)	ND (15)	ND (63)	ND (63)	ND (73)
AOC21-OS5	10/27/14	7 - 8	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC21-OS6	10/27/14	8 - 9	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC21-OS7	10/27/14	3.5 - 4.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC21-OS8	10/27/14	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	10/27/14	5 - 6	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC21-OS9	10/27/14	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (4.9)	ND (5.1)	ND (5.1)	ND (5.9)

TABLE 3-30c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-30d

Sample Results: Total Petroleum Hydrocarbons
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC21-1	01/12/16	0 - 0.5	N	19	150
	01/12/16 ϴ	2 - 3	N	ND (12)	140
	01/12/16	5 - 6	N	ND (14)	19
AOC21-OS1	09/23/14	0 - 0.5	N	33	290
	09/23/14	2 - 3	N	ND (13)	62 J
	09/23/14	2 - 3	FD	24	250 J
	09/23/14	5 - 6	N	ND (14)	33
AOC21-OS2	09/23/14	0 - 0.5	N	ND (10) J	58
	09/23/14	1 - 1.5	N	ND (10)	48
AOC21-OS3	09/23/14	0 - 0.5	N	ND (10)	68
	09/23/14	2 - 3	N	ND (10)	28 J
AOC21-OS4	09/23/14	0 - 0.5	N	ND (10)	44
	09/23/14	2 - 3	N	ND (12)	26
AOC21-OS5	10/27/14	7 - 8	N	ND (11)	ND (11)
AOC21-OS6	10/27/14	8 - 9	N	ND (10)	ND (10)
AOC21-OS7	10/27/14	3.5 - 4.5	N	ND (10)	ND (10)
AOC21-OS8	10/27/14	5 - 6	N	ND (10)	ND (10)
	10/27/14	5 - 6	FD	ND (10)	ND (10)
AOC21-OS9	10/27/14	5 - 6	N	ND (10)	ND (10)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

ϴ	white powder sample.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-30e

Sample Results: General Chemistry Parameters
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC21-1	01/12/16	0 - 0.5	N	8.3
	01/12/16 ϴ	2 - 3	N	9
	01/12/16	5 - 6	N	9.1
AOC21-OS1	09/23/14	0 - 0.5	N	8.2
	09/23/14	2 - 3	N	8.9
	09/23/14	2 - 3	FD	8.9
	09/23/14	5 - 6	N	8.8
AOC21-OS2	09/23/14	0 - 0.5	N	8
	09/23/14	1 - 1.5	N	8.4
AOC21-OS3	09/23/14	0 - 0.5	N	7.8
	09/23/14	2 - 3	N	7.8
AOC21-OS4	09/23/14	0 - 0.5	N	7.8
	09/23/14	2 - 3	N	8.8
AOC21-OS5	10/27/14	7 - 8	N	8.4
AOC21-OS6	10/27/14	8 - 9	N	9.7
AOC21-OS7	10/27/14	3.5 - 4.5	N	10
AOC21-OS8	10/27/14	5 - 6	N	9.7
	10/27/14	5 - 6	FD	9.7
AOC21-OS9	10/27/14	5 - 6	N	9.4

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-30f

Sample Results: Pesticides
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Pesticides (µg/kg)																				
			Commercial Screening Level [1]:	9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endo sulfan I	Endo sulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxy chlor	Toxaphene
Category 1																								
AOC21-1	01/11/17	9 - 10	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-30g

Sample Results: Polychlorinated Biphenyls
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level[1]:	27,000	830	720	950	950	970	990	970	970	940
			Background[2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
AOC21-1	01/12/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	71	49	ND (18)	ND (18)	138
	01/12/16 ϴ	2 - 3	N	ND (20)	ND (40)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (40)
	01/12/16	5 - 6	N	ND (24)	ND (47)	ND (24)	ND (24)	ND (24)	ND (24)	ND (24)	ND (24)	ND (24)	ND (48)
AOC21-OS1	09/23/14	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	60	ND (17)	---	---	85.5
	09/23/14	2 - 3	N	ND (21)	ND (43)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	---	---	ND (42)
	09/23/14	2 - 3	FD	ND (22) J	ND (44) J	ND (22) J	ND (22) J	ND (22) J	ND (22) J	ND (22) J	---	---	ND (44)
	09/23/14	5 - 6	N	ND (23) J	ND (46) J	ND (23) J	ND (23) J	ND (23) J	ND (23) J	ND (23) J	---	---	ND (46)
AOC21-OS2	09/23/14	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	70	ND (17)	---	---	95.5
	09/23/14	1 - 1.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	64.5
AOC21-OS3	09/23/14	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	25	ND (17)	---	---	50.5
	09/23/14	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	21	ND (17)	---	---	46.5
AOC21-OS4	09/23/14	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	09/23/14	2 - 3	N	ND (21)	ND (41)	ND (21)	ND (21)	ND (21)	ND (21)	ND (21)	---	---	ND (42)
AOC21-OS5	10/27/14	7 - 8	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC21-OS6	10/27/14	8 - 9	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC21-OS7	10/27/14	3.5 - 4.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC21-OS8	10/27/14	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	10/27/14	5 - 6	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC21-OS9	10/27/14	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

ϴ	white powder sample.
*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram

TABLE 3-30g

Sample Results: Polychlorinated Biphenyls
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-30h

Constituent Concentrations in Soil Compared to Screening Values
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Metals										
Antimony	mg/kg	10	0 / 18 (0%)	ND (2.8) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	10	16 / 18 (89%)	3.9	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	10	18 / 18 (100%)	170	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	10	0 / 18 (0%)	ND (1.4) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	10	0 / 18 (0%)	ND (1.4) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	10	9 / 19 (47%)	2	5	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	10	18 / 18 (100%)	40	1	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	10	16 / 18 (89%)	9.1	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	10	16 / 18 (89%)	98	2	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	10	13 / 18 (72%)	41	3	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	10	1 / 18 (5.6%)	0.14	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	10	1 / 18 (5.6%)	2.2	1	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	10	18 / 18 (100%)	17	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	10	0 / 18 (0%)	ND (1.4)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	10	3 / 18 (17%)	3.4	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	10	0 / 18 (0%)	ND (2.8) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	10	18 / 18 (100%)	49	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	10	18 / 18 (100%)	90	1	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	4 / 4 (100%)	9,900	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	10	18 / 18 (100%)	310,000	5	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	4 / 4 (100%)	17,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	4 / 4 (100%)	17,000	2	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	4 / 4 (100%)	250	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	4 / 4 (100%)	2,200	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	10	18 / 18 (100%)	3,400	2	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 4 (0%)	ND (0.288)	NA	(NE)	NA	(NA)	0	(150)

TABLE 3-30h

Constituent Concentrations in Soil Compared to Screening Values
AOC 21 – Round Depression near Sludge Drying Bed
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
Parameter	**Units**	**Number of Locations**	**Frequency of Detection**	**Maximum Detected Value**	**# of Exceedences [4]**	**(BK)**	**# of Exceedences [5]**	**(ESL)**	**# of Exceedences [5]**	**(CSL)**
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	10	1 / 18 (5.6%)	25	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	10	1 / 18 (5.6%)	51	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	10	5 / 18 (28%)	120	NA	(NE)	NA	(NA)	0	(21,000)
Chrysene	µg/kg	10	2 / 18 (11%)	51	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	10	3 / 18 (17%)	67	NA	(NE)	NA	(NA)	0	(30,000,000)
Phenanthrene	µg/kg	10	1 / 18 (5.6%)	12	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	10	2 / 18 (11%)	61	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	10	6 / 18 (33%)	94	5	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	10	6 / 17 (35%)	71	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	10	1 / 17 (5.9%)	49	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	10	6 / 17 (35%)	138	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	10	3 / 17 (18%)	33	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	10	12 / 17 (71%)	290	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	10	0 / 12 (0%)	ND (3.5)	NA	(NE)	0	(740)	0	(3,900)

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-31a
Sample Results: Metals
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC22-1	01/06/16	0 - 0.5	N	ND (2.1)	2.8	87	ND (1)	ND (1)	ND (0.21) J	21 J	5.3	7.2	5	ND (0.1)	ND (1)	15 J	ND (1)	ND (1)	ND (2.1)	22	33
	01/06/16	0 - 0.5	FD	ND (2.1)	3.1	84	ND (1.1)	ND (1.1)	**3.3 J**	17 J	6.2	8.9	6.3	ND (0.1)	ND (1.1)	12 J	ND (1.1)	ND (1.1)	ND (2.1)	26	34
	01/06/16	2 - 3	N	ND (2.2)	3.3	75	ND (1.1)	ND (1.1)	ND (0.22)	**46**	6.5	11	**100**	ND (0.11)	ND (1.1)	15	ND (1.1)	2	ND (2.2)	30	**67**
AOC22-2	01/06/16	0 - 0.5	N	ND (2.1) J	3.7	87 J	ND (1)	ND (1)	0.5	20	5	12 J	**12**	ND (0.1)	ND (1)	8.8	ND (1) J	ND (1)	ND (2.1)	23	47 J
	01/06/16	2 - 3	N	ND (2.2)	3.2	69	ND (1.1)	ND (1.1)	**10**	**42**	6.2	**18**	**75**	0.24	ND (1.1)	11	ND (1.1)	1.2	ND (2.2)	31	58
	01/17/17	5 - 6	N	ND (2.1)	3.3	100	ND (1.1)	ND (1.1)	ND (0.21)	25 J	6.1	9.7	1.8	ND (0.11)	ND (1.1)	17 J	ND (1.1) J	ND (1.1)	ND (2.1)	26	22
	01/17/17	5 - 6	FD	ND (2.1)	3.2	120	ND (1.1)	ND (1.1)	ND (0.21)	19 J	5.9	8.5	2.3	ND (0.11)	ND (1.1)	13 J	ND (1.1) J	ND (1.1)	ND (2.1)	24	22
	01/17/17	9 - 10	N	ND (2.2)	3.3	81	ND (1.1)	ND (1.1)	ND (0.22)	28	8.3	15	2.8	ND (0.11)	ND (1.1)	23	ND (1.1) J	ND (1.1)	ND (2.2)	34	32
AOC22-3	01/17/17	0 - 0.5	N	ND (2)	2.9	49	ND (1)	ND (1)	**1.3**	17	2.9	**17**	4.7	ND (0.1)	ND (1)	5.7	ND (1) J	ND (1)	ND (2)	15	25
	01/17/17	2 - 3	N	ND (2.1)	2.7	69	ND (1)	ND (1)	0.64	26	5.6	8.6	**8.7**	ND (0.1)	ND (1)	14	ND (1) J	ND (1)	ND (2.1)	24	36
	01/17/17	5 - 6	N	ND (2.2)	3.2	68	ND (1.1)	ND (1.1)	ND (0.22)	23	6.8	10	2	ND (0.11)	ND (1.1)	17	ND (1.1) J	ND (1.1)	ND (2.2)	27	24
	01/17/17	9 - 10	N	ND (2)	2.9	70	ND (1)	ND (1)	ND (0.2)	4.5	2.6	6.7	1.8	ND (0.1)	ND (1)	3.3	ND (1) J	ND (1)	ND (2)	12	10

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-31b

Sample Results: Contract Laboratory Program Inorganics
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC22-2	01/17/17	5 - 6	N	8,100	32,000	14,000	6,600	190	1,600 J	330 J	ND (0.216) J
AOC22-3	01/17/17	0 - 0.5	N	4,400	17,000	7,600	2,900	140	1,100 J	670 J	ND (0.205) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-31c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC22-1	01/06/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	12	6	ND (5.3)	7.4	ND (5.3)	8.8	ND (5.3)	5.3	ND (5.3)	ND (5.3)	9.1	12
	01/06/16	0 - 0.5	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.5	14	24	11	9.5	14	ND (5.3)	17	ND (5.3)	9.8	ND (5.3)	ND (5.3)	17	21
	01/06/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
AOC22-2	01/06/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	27	21	46	9	18	43	ND (5.2)	49	ND (5.2)	9.3	ND (5.2)	17	57	32
	01/06/16	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	37	55	92	59	ND (55)	59	ND (55)	66	ND (5.5)	ND (55)	ND (5.5)	14	67	**98**
	01/17/17	5 - 6	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
	01/17/17	5 - 6	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (6.2)
	01/17/17	9 - 10	N	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	6.1 J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	ND (5.4) J	6.6
AOC22-3	01/17/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	26 J	31	72	11	16	32	ND (5.1)	45	ND (5.1)	11	ND (5.1)	13	45	45
	01/17/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/17/17	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (6.4)
	01/17/17	9 - 10	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)

TABLE 3-31c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-31d

Sample Results: Total Petroleum Hydrocarbons
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC22-1	01/06/16	0 - 0.5	N	ND (11)	28
	01/06/16	0 - 0.5	FD	ND (11)	30
	01/06/16	2 - 3	N	ND (11)	54
AOC22-2	01/06/16	0 - 0.5	N	ND (10)	46
	01/06/16	2 - 3	N	13	91

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-31e

Sample Results: General Chemistry Parameters
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC22-1	01/06/16	0 - 0.5	N	9.4
	01/06/16	0 - 0.5	FD	10
	01/06/16	2 - 3	N	9.7
AOC22-2	01/06/16	0 - 0.5	N	8.3
	01/06/16	2 - 3	N	9

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-31f

Sample Results: Pesticides
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				**9,600**	**9,300**	**8,500**	**180**	**360**	**1,500**	**370**	**370**	**140**	**7,000,000**	**7,000,000**	**7,000,000**	**250,000**	**250,000**	**250,000**	**370**	**1,500**	**630**	**330**	**4,100,000**	**2,100**
Background [2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC22-2	01/17/17	5 - 6	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC22-3	01/17/17	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	1.3	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	2.8 J	ND (1)	ND (1)	ND (5.1)	ND (51) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-31g

Sample Results: Polychlorinated Biphenyls
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
			Commercial Screening Level [1] :	27,000	830	720	950	950	970	990	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
AOC22-1	01/06/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	31	ND (17)	56.5
	01/06/16	0 - 0.5	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/06/16	2 - 3	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC22-2	01/06/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	76	ND (17)	101.5
	01/06/16	2 - 3	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	140	78	236
	01/17/17	5 - 6	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/17/17	5 - 6	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/17/17	9 - 10	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC22-3	01/17/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	35	ND (17)	60.5
	01/17/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	20	31	68
	01/17/17	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/17/17	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established

TABLE 3-31g

Sample Results: Polychlorinated Biphenyls
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-31h

Sample Results: Dioxins and Furans
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
		Commercial Screening Level [1]:		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
		Background [2]:		**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC22-2	01/06/16	0 - 0.5	N	1,300 J	80 J	5.4 J	10 J	4.1 J	24 J	ND (3.1) J	12 J	ND (1.2) J	3.3 J	1.8 J	ND (93) J	1.8 J	ND (0.44) J	1.1 J	11,000 J	260 J	**31**
	01/06/16	2 - 3	N	1,100 J	82 J	ND (5.3) J	10 J	7.8 J	27 J	7 J	15 J	1.8 J	ND (4.1) J	4.7 J	ND (100) J	3.1 J	ND (0.12) J	3.4 J	12,000 J	160 J	**31**
AOC22-3	01/17/17	0 - 0.5	N	5,900	120	ND (4.3)	810	ND (22)	120	ND (20)	49	ND (25)	ND (1.4)	ND (0.79)	ND (460)	ND (6.8)	ND (1.1)	ND (3.8)	52,000	210	**200**
	01/17/17	2 - 3	N	380	27	1.8 J	3.1 J	2.7 J	8 J	ND (2.5)	ND (2.9)	ND (1.5)	ND (1.2)	2.2 J	ND (31)	ND (1.6)	ND (0.19)	ND (3.8)	3,000	38	**9.5**
	01/17/17	5 - 6	N	170	4.3 J	ND (0.69)	3.4 J	ND (0.48)	3.7 J	ND (0.24)	ND (1)	ND (0.31)	ND (0.22)	ND (0.22)	ND (13)	ND (0.23)	ND (0.18)	ND (0.13)	950	7.7 J	3.7
	01/17/17	9 - 10	N	41	ND (1.9)	ND (0.57)	ND (0.59)	ND (0.091)	ND (0.38)	ND (0.083)	ND (0.27)	ND (0.11)	ND (0.062)	ND (0.085)	ND (2.7)	ND (0.089)	ND (0.072)	ND (0.08)	420	4.3 J	0.85

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-31i

Constituent Concentrations in Soil Compared to Screening Values
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	2	6 / 6 (100%)	200	4	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	3	0 / 10 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	3	10 / 10 (100%)	3.7	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	3	10 / 10 (100%)	120	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	3	0 / 10 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	3	0 / 10 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	3	5 / 10 (50%)	10	3	(0.83)	NA	(NA)	1	(6.3)
Chromium, total	mg/kg	3	10 / 10 (100%)	46	2	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	3	10 / 10 (100%)	8.3	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	3	10 / 10 (100%)	18	2	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	3	10 / 10 (100%)	100	4	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	3	1 / 10 (10%)	0.24	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	3	0 / 10 (0%)	ND (1.1)	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	3	10 / 10 (100%)	23	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	3	0 / 10 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	3	2 / 10 (20%)	2	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	3	0 / 10 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	3	10 / 10 (100%)	34	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	3	10 / 10 (100%)	67	1	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	2 / 2 (100%)	8,100	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	2 / 2 (100%)	32,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	2	2 / 2 (100%)	14,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	2 / 2 (100%)	6,600	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	2	2 / 2 (100%)	190	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	2	2 / 2 (100%)	1,600	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-31i

Constituent Concentrations in Soil Compared to Screening Values
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	2	2 / 2 (100%)	670	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	2	0 / 2 (0%)	ND (0.216)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	3	4 / 10 (40%)	37	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	3	4 / 10 (40%)	55	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	3	5 / 10 (50%)	92	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	3	4 / 10 (40%)	59	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	3	3 / 10 (30%)	18	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	3	4 / 10 (40%)	59	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	3	4 / 10 (40%)	66	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	3	3 / 10 (30%)	11	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	3	3 / 10 (30%)	17	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	3	4 / 10 (40%)	67	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	3	5 / 10 (50%)	98	1	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	3	5 / 10 (50%)	140	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	3	2 / 10 (20%)	78	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	3	5 / 10 (50%)	236	NA	(NE)	NA	(NA)	0	(940)
Pesticides										
alpha-Chlordane	µg/kg	2	1 / 2 (50%)	1.3	NA	(NE)	NA	(NA)	0	(1,500)
gamma-Chlordane	µg/kg	2	1 / 2 (50%)	2.8	NA	(NE)	NA	(NA)	0	(1,500)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	2	1 / 4 (25%)	13	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	2	4 / 4 (100%)	91	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	2	0 / 2 (0%)	ND (1.5)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-31i

Constituent Concentrations in Soil Compared to Screening Values
AOC 22 – Unidentified Three-sided Structure
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-32a
Sample Results: Metals
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC23-1	12/08/15	0 - 1	N	ND (2.3)	2.9	86 J	ND (1.2)	ND (1.2)	ND (0.23)	30 J	8.6	**19 J**	4.9	ND (0.12)	ND (1.2)	23	ND (1.2)	ND (1.2)	ND (2.3)	37	33
	12/08/15	0 - 1	FD	ND (2.2)	2.6	69 J	ND (1.1)	ND (1.1)	ND (0.22)	23 J	7.2	15 J	3.7	ND (0.11)	ND (1.1)	23	ND (1.1)	ND (1.1)	ND (2.2)	31	31
	12/08/15	2 - 3	N	ND (2.3)	2	85	ND (1.2)	ND (1.2)	ND (0.23)	38	9.3	15	2.3	ND (0.12)	ND (1.2)	27	ND (1.2)	ND (1.2)	ND (2.3)	39	39
AOC23-2	01/07/16	0 - 0.5	N	ND (2.2)	4.1	93	ND (1.1)	ND (1.1)	0.41	37	9.7	**34**	**14**	0.44	**1.7**	25	ND (1.1)	ND (1.1)	ND (2.2)	35	**150**
AOC23-3	01/07/16	0 - 0.5	N	ND (2.3)	6.6	150	ND (1.1)	**2.5**	**9.9**	**460**	11	**55**	**330**	0.64	ND (1.1)	**32**	ND (1.1)	ND (1.1)	ND (2.3)	41	**360**
AOC23-4	01/17/17	0 - 0.5	N	ND (2.1)	3.9	76	ND (1.1)	ND (1.1)	0.3	21	7.2	9.9	**15**	ND (0.11)	ND (1.1)	11	ND (1.1) J	ND (1.1)	ND (2.1)	23	53
	01/17/17	2 - 3	N	ND (2.1)	3.2	66	ND (1.1)	1.1	ND (0.21)	**57**	12	**21**	4.9	ND (0.11)	ND (1.1)	**35**	ND (1.1) J	ND (1.1)	ND (2.1)	50	47

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-32b

Sample Results: Contract Laboratory Program Inorganics
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC23-4	01/17/17	0 - 0.5	N	6,100	23,000	14,000	4,300	190	1,400 J	200 J	ND (0.214) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-32c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC23-1	12/08/15	0 - 1	N	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (6.7)
	12/08/15	0 - 1	FD	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (6.4)
	12/08/15	2 - 3	N	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5)	ND (5.9)	ND (5.9)	ND (6.8)
AOC23-2	01/07/16	0 - 0.5	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	6	14	34	7.1	9.3	13	ND (5.6)	12	ND (5.6)	6.7	ND (5.6)	ND (5.6)	12	22
AOC23-3	01/07/16	0 - 0.5	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	8.3 J	240	ND (560)	ND (560)	ND (560)	ND (560)	350	ND (560)	590	ND (5.6)	ND (560)	ND (5.6)	140 J	570	**640**
AOC23-4	01/17/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	68 J	87	160	26	60	75	ND (5.3)	110	ND (5.3)	25	ND (5.3)	33	110	**120**
	01/17/17	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	23 J	27	49	11	18	24	ND (5.4)	32	ND (5.4)	10	ND (5.4)	8.3	33	38

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA's Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-32d

Sample Results: Total Petroleum Hydrocarbons
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC23-1	12/08/15	0 - 1	N	ND (12)	ND (12)
	12/08/15	0 - 1	FD	ND (11)	14
	12/08/15	2 - 3	N	ND (12)	ND (12)
AOC23-2	01/07/16	0 - 0.5	N	18	110
AOC23-3	01/07/16	0 - 0.5	N	160	740

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-32e

Sample Results: General Chemistry Parameters
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC23-1	12/08/15	0 - 1	N	10
	12/08/15	0 - 1	FD	11
	12/08/15	2 - 3	N	10
AOC23-2	01/07/16	0 - 0.5	N	9.4
AOC23-3	01/07/16	0 - 0.5	N	8.9

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-32f
Sample Results: Pesticides
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Commercial Screening Level [1]:				9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
Background [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
Category 1																								
AOC23-4	01/17/17	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-32g

Sample Results: Polychlorinated Biphenyls
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
		Commercial Screening Level[1]:		27,000	830	720	950	950	970	990	940
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
Category 1											
AOC23-1	12/08/15	0 - 1	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
	12/08/15	0 - 1	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	12/08/15	2 - 3	N	ND (19)	ND (38)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
AOC23-2	01/07/16	0 - 0.5	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	45	ND (18)	72
AOC23-3	01/07/16	0 - 0.5	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	720	ND (19)	748.5
AOC23-4	01/17/17	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	50	ND (18)	77
	01/17/17	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	110	ND (18)	137

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-32h

Sample Results: Dioxins and Furans
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
			Background [2] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	**Date**	**Depth (ft bgs)**	**Sampl e Type**	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
AOC23-2	01/07/16	0 - 0.5	N	180 J	16 J	1.4 J	ND (2.3) J	ND (0.96) J	5.3 J	ND (1.3) J	4.1 J	ND (0.49) J	ND (0.82) J	ND (0.2) J	ND (17) J	ND (0.51) J	ND (0.11) J	ND (0.35) J	1,600 J	41 J	5.1
AOC23-3	01/07/16	0 - 0.5	N	15,000 J	1,300 J	93 J	99 J	100 J	440 J	71 J	170 J	24 J	ND (5.3) J	ND (6.5) J	ND (2,500) J	42 J	ND (3.1) J	ND (6.3) J	130,000 J	3,000 J	**440**
AOC23-4	01/17/17	0 - 0.5	N	540	43	3 J	3.8 J	3.4 J	14	ND (2.1)	7.4 J	ND (0.98)	ND (1.8)	ND (0.82)	ND (80)	ND (1.2)	ND (0.18)	1.1 J	4,900	100	**16**
	01/17/17	2 - 3	N	270	24	2.5 J	1.7 J	ND (0.32)	6.6 J	ND (1.4)	3.5 J	ND (1.2)	ND (0.79)	ND (0.57)	ND (41)	ND (0.25)	ND (0.17)	ND (0.34)	3,100	56	**7.8**

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-32i

Constituent Concentrations in Soil Compared to Screening Values
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	3	4 / 4 (100%)	440	3	(5.58)	NA	(NA)	1	(220)
Metals										
Antimony	mg/kg	4	0 / 6 (0%)	ND (2.3) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	4	6 / 6 (100%)	6.6	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	4	6 / 6 (100%)	150	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	4	0 / 6 (0%)	ND (1.2) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	4	2 / 6 (33%)	2.5	1	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	4	3 / 6 (50%)	9.9	1	(0.83)	NA	(NA)	1	(6.3)
Chromium, total	mg/kg	4	6 / 6 (100%)	460	2	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	4	6 / 6 (100%)	12	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	4	6 / 6 (100%)	55	4	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	4	6 / 6 (100%)	330	3	(8.39)	NA	(NA)	1	(320)
Mercury	mg/kg	4	2 / 6 (33%)	0.64	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	4	1 / 6 (17%)	1.7	1	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	4	6 / 6 (100%)	35	2	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	4	0 / 6 (0%)	ND (1.2)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	4	0 / 6 (0%)	ND (1.2)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	4	0 / 6 (0%)	ND (2.3) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	4	6 / 6 (100%)	50	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	4	6 / 6 (100%)	360	2	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	1 / 1 (100%)	6,100	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	1 / 1 (100%)	23,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	1 / 1 (100%)	14,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	1 / 1 (100%)	4,300	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	1 / 1 (100%)	190	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	1 / 1 (100%)	1,400	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-32i

Constituent Concentrations in Soil Compared to Screening Values
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

					Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
Parameter	**Units**	**Number of Locations**	**Frequency of Detection**	**Maximum Detected Value**	**# of Exceedences [4]**	**(BK)**	**# of Exceedences [5]**	**(ESL)**	**# of Exceedences [5]**	**(CSL)**
Contract Laboratory Program Inorganics										
Sodium	mg/kg	1	1 / 1 (100%)	200	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 1 (0%)	ND (0.214)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Anthracene	µg/kg	4	1 / 6 (17%)	8.3	NA	(NE)	NA	(NA)	0	(230,000,000)
Benzo (a) anthracene	µg/kg	4	4 / 6 (67%)	240	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	4	3 / 6 (50%)	87	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	4	3 / 6 (50%)	160	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	4	3 / 6 (50%)	26	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	4	3 / 6 (50%)	60	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	4	4 / 6 (67%)	350	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	4	4 / 6 (67%)	590	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	4	3 / 6 (50%)	25	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	4	3 / 6 (50%)	140	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	4	4 / 6 (67%)	570	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	4	4 / 6 (67%)	640	2	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	4	4 / 6 (67%)	720	NA	(NE)	NA	(NA)	0	(970)
Total PCBs	µg/kg	4	4 / 6 (67%)	748.5	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	3	2 / 4 (50%)	160	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	3	3 / 4 (75%)	740	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	1	0 / 1 (0%)	ND (1.1)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-32i

Constituent Concentrations in Soil Compared to Screening Values
AOC 23 – Former Water Conditioning Building
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-33a

Sample Results: Metals
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
			Commercial Screening Level [1]:	**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
			Background [2]:	**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
AOC24-1	01/10/16	0 - 0.5	N	ND (2)	2.3	93	ND (1)	ND (1)	**1**	18	6.3	7.1	3.1	ND (0.1)	ND (1)	8.6	ND (1)	ND (1)	ND (2)	23	33
	01/10/16	2 - 3	N	ND (2.1)	4.5	130	ND (1.1)	ND (1.1)	**1.2**	35	7.8	13	4.5	ND (0.11)	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1)	26	28
AOC24-2	01/11/16	0 - 0.5	N	ND (2.1)	5	140	ND (1.1)	ND (1.1)	0.82	28	6.7	10	7	ND (0.1)	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1)	27	32
	01/11/16	0 - 0.5	FD	ND (2.2)	4.7	150	ND (1.1)	ND (1.1)	0.8	28	5.6	9.4	7.2	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2)	25	32
	01/11/16	2 - 3	N	ND (2.1)	4	140	ND (1.1)	ND (1.1)	0.65	31	5.6	9.4	7.9	ND (0.11)	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1)	24	30
	01/11/16	5 - 6	N	ND (2.1)	1.9	100 J	ND (1)	ND (1)	ND (0.21)	17	8.5	8.3	2.4	ND (0.1)	ND (1)	14	ND (1) J	ND (1)	ND (2.1)	31	33
AOC24-OS1	12/14/11	0 - 0.5	N	ND (2.1)	3.8	190	ND (1)	ND (1)	**1.2**	30	5.1	9.3	**8.4**	ND (0.1)	ND (1)	9.7	ND (1)	ND (1)	ND (2.1) J	29	33
	12/14/11	1 - 2	N	ND (2.1)	3.3	200	ND (1)	ND (1)	0.76	26	5.8	9.6	7.8	ND (0.11)	ND (1)	11	ND (1)	ND (1)	ND (2.1)	31	36
AOC24-OS2	12/14/11	0 - 0.5	N	ND (2.1)	2.3	91	ND (1)	ND (1)	ND (0.41)	20	7.1	8	**17**	ND (0.1)	ND (1)	13	ND (1)	ND (1)	ND (2.1)	30	32
	12/14/11	1 - 2	N	ND (2.1)	3.4	170	ND (1)	ND (1)	ND (0.42)	16	4	6.9	6.4	ND (0.1)	ND (1)	7.8	ND (1)	ND (1)	ND (2.1)	25	27

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-33b

Sample Results: Contract Laboratory Program Inorganics
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
AOC24-OS1	12/14/11	0 - 0.5	N	7,600	31,000	14,000	6,300	260 J	1,600	1,100	ND (0.25)

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-33c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1] :				73,000	3,000,000	45,000,000	45,000,000	230,000,000	21,000	2,100	21,000	23,000,000	210,000	2,100,000	2,100	30,000,000	30,000,000	21,000	17,000	230,000,000	23,000,000	2,100
Background[2] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	B(a)P Equivalent
Category 1																						
AOC24-1	01/10/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (57)
	01/10/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (6.1)
AOC24-2	01/11/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	10 J	ND (53)	ND (53)	ND (53)	ND (53)	15 J	ND (53)	21 J	ND (5.2)	ND (53)	ND (5.2)	ND (5.2)	19 J	**60**
	01/11/16	0 - 0.5	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.2	ND (54)	ND (54)	ND (54)	ND (54)	11	ND (54)	20	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	18	**60**
	01/11/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (60)
	01/11/16	5 - 6	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
AOC24-OS1	12/14/11	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	12	10	26	5.2	10	17	ND (5.2)	26	ND (5.2)	ND (5.2)	ND (5.2)	8.3	24	17
	12/14/11	1 - 2	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	45	44	100	17	28	50	5.2	85	ND (5.2)	18	ND (5.2)	33	76	**66**
AOC24-OS2	12/14/11	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/14/11	1 - 2	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	14	ND (5.2)	30	6.6	8.3	13	ND (5.2)	24	ND (5.2)	5.9	ND (5.2)	ND (5.2)	23	10

TABLE 3-33c

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-33d

Sample Results: Total Petroleum Hydrocarbons

AOC 24 – Stained Area and Former API Oil/Water Separator

RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation

PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Commercial Screening Level [1]:	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**230**	**11,000**
			Background [3]:	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
Category 1					
AOC24-1	01/10/16	0 - 0.5	N	120 J	640
	01/10/16	2 - 3	N	24	230
AOC24-2	01/11/16	0 - 0.5	N	25	160
	01/11/16	0 - 0.5	FD	25	170
	01/11/16	2 - 3	N	31	260
	01/11/16	5 - 6	N	ND (10)	ND (10)
AOC24-OS1	12/14/11	0 - 0.5	N	77	430
	12/14/11	1 - 2	N	39	200
AOC24-OS2	12/14/11	0 - 0.5	N	ND (10)	ND (10)
	12/14/11	1 - 2	N	ND (10)	32

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-33e

Sample Results: General Chemistry Parameters
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC24-1	01/10/16	0 - 0.5	N	8.4
	01/10/16	2 - 3	N	8.8
AOC24-2	01/11/16	0 - 0.5	N	8.2
	01/11/16	0 - 0.5	FD	8.3
	01/11/16	2 - 3	N	9.2
	01/11/16	5 - 6	N	8.2

Notes:

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Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-33f

Sample Results: Pesticides
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	4,4-DDD	4,4-DDE	4,4-DDT	Aldrin	alpha-BHC	alpha-Chlordane	beta-BHC	delta-BHC	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	gamma-BHC	gamma-Chlordane	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene
				Pesticides (µg/kg)																				
			Commercial Screening Level [1]:	9,600	9,300	8,500	180	360	1,500	370	370	140	7,000,000	7,000,000	7,000,000	250,000	250,000	250,000	370	1,500	630	330	4,100,000	2,100
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Category 1																								
AOC24-OS1	12/14/11	0 - 0.5	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	1.7	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	1.6 J	ND (1)	ND (1)	ND (5.2)	ND (52) J
	12/14/11	1 - 2	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC24-OS2	12/14/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
	12/14/11	1 - 2	N	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for pesticides.

TABLE 3-33g

Sample Results: Polychlorinated Biphenyls
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	27,000	830	720	950	950	970	990	970	970	940
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
Category 1													
AOC24-1	01/10/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/10/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC24-2	01/11/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	28	ND (17)	---	---	53.5
	01/11/16	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	18	ND (18)	---	---	45
	01/11/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/11/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC24-OS1	12/14/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/14/11	1 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	ND (17)	ND (17)	55.5
AOC24-OS2	12/14/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/14/11	1 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

TABLE 3-33g

Sample Results: Polychlorinated Biphenyls
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-33h

Sample Results: Dioxins and Furans
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	22	NE	NE	NE	22	NE	NE	NE	220
			Background [2]:	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Human
Category 1																					
AOC24-2	01/11/16	0 - 0.5	N	240 J	24 J	ND (1.1) J	ND (0.81) J	ND (0.91) J	ND (0.79) J	ND (0.61) J	ND (0.77) J	ND (0.78) J	ND (1.3) J	ND (0.69) J	ND (31) J	ND (0.68) J	ND (0.17) J	ND (0.49) J	2,800 J	62 J	**6.2**
	01/11/16	2 - 3	N	78	ND (7.3)	ND (1)	ND (0.44)	ND (0.4)	1.7 J	ND (0.36)	ND (0.44)	ND (0.46)	ND (0.68)	ND (0.24)	ND (8.8)	ND (0.64)	ND (0.2)	ND (0.17)	910	18 J	2.4

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-33i

Constituent Concentrations in Soil Compared to Screening Values
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	Background Value (BK) [1] (BK)	RWQCB Environmental Screening Levels (ESL)[2] # of Exceedences [5]	RWQCB Environmental Screening Levels (ESL)[2] (ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	Commercial Screening Level (CSL) [3] (CSL)
Dioxins and Furans										
TEQ Human	ng/kg	1	2 / 2 (100%)	6.2	1	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	4	0 / 9 (0%)	ND (2.1) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	4	9 / 9 (100%)	5	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	4	9 / 9 (100%)	200	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	4	0 / 9 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	4	0 / 9 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	4	6 / 9 (67%)	1.2	3	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	4	9 / 9 (100%)	35	0	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	4	9 / 9 (100%)	8.5	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	4	9 / 9 (100%)	13	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	4	9 / 9 (100%)	17	2	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	4	0 / 9 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	4	0 / 9 (0%)	ND (1.1)	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	4	9 / 9 (100%)	19	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	4	0 / 9 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	4	0 / 9 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	4	0 / 9 (0%)	ND (2.1) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	4	9 / 9 (100%)	31	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	4	9 / 9 (100%)	36	0	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	1	1 / 1 (100%)	7,600	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	1	1 / 1 (100%)	31,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	1	1 / 1 (100%)	14,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	1	1 / 1 (100%)	6,300	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	1	1 / 1 (100%)	260	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	1	1 / 1 (100%)	1,600	0	(4,400)	NA	(NA)	NA	(NE)

TABLE 3-33i

Constituent Concentrations in Soil Compared to Screening Values
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1]		RWQCB Environmental Screening Levels (ESL) [2]		Commercial Screening Level (CSL) [3]	
					# of Exceedences [4]	(BK)	# of Exceedences [5]	(ESL)	# of Exceedences [5]	(CSL)
Contract Laboratory Program Inorganics										
Sodium	mg/kg	1	1 / 1 (100%)	1,100	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	1	0 / 1 (0%)	ND (0.25)	NA	(NE)	NA	(NA)	0	(150)
Polycyclic Aromatic Hydrocarbons										
Benzo (a) anthracene	µg/kg	4	4 / 9 (44%)	45	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (a) pyrene	µg/kg	4	2 / 9 (22%)	44	NA	(NE)	NA	(NA)	0	(2,100)
Benzo (b) fluoranthene	µg/kg	4	3 / 9 (33%)	100	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (ghi) perylene	µg/kg	4	3 / 9 (33%)	17	NA	(NE)	NA	(NA)	0	(23,000,000)
Benzo (k) fluoranthene	µg/kg	4	3 / 9 (33%)	28	NA	(NE)	NA	(NA)	0	(210,000)
Chrysene	µg/kg	4	4 / 9 (44%)	50	NA	(NE)	NA	(NA)	0	(2,100,000)
Dibenzo (a,h) anthracene	µg/kg	4	1 / 9 (11%)	5.2	NA	(NE)	NA	(NA)	0	(2,100)
Fluoranthene	µg/kg	4	4 / 9 (44%)	85	NA	(NE)	NA	(NA)	0	(30,000,000)
Indeno (1,2,3-cd) pyrene	µg/kg	4	2 / 9 (22%)	18	NA	(NE)	NA	(NA)	0	(21,000)
Phenanthrene	µg/kg	4	2 / 9 (22%)	33	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	4	4 / 9 (44%)	76	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	4	4 / 9 (44%)	66	2	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	4	2 / 9 (22%)	30	NA	(NE)	NA	(NA)	0	(970)
Total PCBs	µg/kg	4	2 / 9 (22%)	55.5	NA	(NE)	NA	(NA)	0	(940)
Pesticides										
alpha-Chlordane	µg/kg	2	1 / 4 (25%)	1.7	NA	(NE)	NA	(NA)	0	(1,500)
gamma-Chlordane	µg/kg	2	1 / 4 (25%)	1.6	NA	(NE)	NA	(NA)	0	(1,500)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	4	6 / 9 (67%)	120	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	4	7 / 9 (78%)	640	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	2	0 / 3 (0%)	ND (1.4)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-33i

Constituent Concentrations in Soil Compared to Screening Values
AOC 24 – Stained Area and Former API Oil/Water Separator
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-34a
Sample Results: Metals
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																		
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**NE**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**NE**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																						
AOC26-1	12/15/15	0 - 0.5	N	ND (2)	ND (1) *	ND (1)	ND (1)	ND (1)	ND (0.2)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (0.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (1)
	12/15/15	2 - 3	N	ND (2)	3.2	68	ND (1)	ND (1)	ND (0.2)	6.1	6.1	2.4	3.9	2.5	ND (0.1)	ND (1)	4.7	ND (1)	ND (1)	ND (2)	9.7	14
	12/15/15	5 - 6	N	ND (2.1)	3.2	62	ND (1)	ND (1)	ND (0.21)	6.9	6.9	2.1	4	2.2	ND (0.1)	ND (1)	4.3	ND (1)	ND (1)	ND (2.1)	10	15
	12/15/15	9 - 10	N	ND (2.1)	3.5	93	ND (1)	ND (1)	ND (0.21)	6.9	6.9	3.3	4.9	2.4	ND (0.1)	ND (1)	5.9	ND (1)	ND (1)	ND (2.1)	11	15
	01/10/16	24 - 25	N	ND (2.2)	2.7	33	ND (1.1)	ND (1.1)	ND (0.22)	26	26	9.2	13	2.6	0.27	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.2)	34	34
	01/10/16	49 - 50	N	ND (2.1)	1.4	59	ND (1.1)	ND (1.1)	ND (0.21)	29	29	9	13	1.4	0.24	ND (1.1)	19	ND (1.1)	ND (1.1)	ND (2.1)	32	32
	01/11/16	74 - 75	N	ND (2.1)	1.9	94	ND (1)	ND (1)	ND (0.21)	42	**42**	**13**	**18**	2.4	0.3	ND (1)	**36**	ND (1)	ND (1)	ND (2.1)	48	40
AOC26-2	01/14/16	0 - 0.5	N	ND (2.1)	3.7	**540**	ND (1.1)	ND (1.1)	0.27	21	21	6.6	13	**10**	0.13	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1)	22	38
	01/14/16	2 - 3	N	ND (2.1)	4	150	ND (1.1)	ND (1.1)	ND (0.21)	12	12	4.1	7	**11**	ND (0.1)	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.1)	17	27
	01/14/16	5 - 6	N	ND (2.2)	5.8	130	ND (1.1)	ND (1.1)	0.26	19	19	5.5	11	**8.9**	0.13	**2.3**	13	ND (1.1)	ND (1.1)	ND (2.2)	24	36
AOC26-3	01/13/16	0 - 0.5	N	ND (2.1)	4.9	85	ND (1)	ND (1)	ND (0.21)	9.2	9.2	3	5.9	3.1	ND (0.1)	ND (1)	6.9	ND (1)	ND (1)	ND (2.1)	12	23
	01/13/16	2 - 3	N	ND (2.1)	3.5	130	ND (1)	ND (1)	ND (0.21)	10	10	3.2	6.2	**11**	ND (0.1)	ND (1)	5.5	ND (1)	ND (1)	ND (2.1)	14	32
	01/13/16	5 - 6	N	ND (2.2)	4.2	170	ND (1.1)	ND (1.1)	ND (0.22)	13	13	5.3	7.5	4.3	0.13	1.3	11	ND (1.1)	ND (1.1)	ND (2.2)	21	30
AOC26-4	01/13/16	0 - 0.5	N	ND (2.1)	8.8	160	ND (1)	ND (1)	0.75	22	22	5.2	10	**19**	0.11	1.2	10	ND (1)	ND (1)	ND (2.1)	22	35
	01/13/16	2 - 3	N	ND (2.1)	3.8	150	ND (1)	ND (1)	ND (0.21)	8.8	8.8	3.9	6.3	2.6	ND (0.1)	**1.8**	6.6	ND (1)	ND (1)	ND (2.1)	17	19
	01/13/16	5 - 6	N	ND (2.1)	2.7	94	ND (1)	ND (1)	ND (0.21)	40	**40**	8.5	11	3.1	ND (0.1)	ND (1)	27	ND (1)	ND (1)	ND (2.1)	31	38
	01/13/16	9 - 10	N	ND (2.1)	3.8	170	ND (1.1)	ND (1.1)	ND (0.21)	13	13	5.3	7.6	3.9	0.11	**1.7**	10	ND (1.1)	ND (1.1)	ND (2.1)	21	26
AOC26-5	01/13/16	0 - 0.5	N	ND (2.2)	3.5	200	ND (1.1)	ND (1.1)	ND (0.22)	4.9	4.9	2.8	3.7	2.8	ND (0.11)	ND (1.1)	4.5	ND (1.1)	ND (1.1)	ND (2.2)	12	14
	01/13/16	2 - 3	N	ND (2.1)	3.8	130	ND (1)	ND (1)	ND (0.21)	7.6	7.6	3	5.4	4.8	ND (0.1)	ND (1)	5.8	ND (1)	ND (1)	ND (2.1)	13	20
	01/13/16	5 - 6	N	ND (2.2)	3.4	150	ND (1.1)	ND (1.1)	ND (0.22)	13	13	5.8	8.8	4.2	0.13	ND (1.1)	9.9	ND (1.1)	ND (1.1)	ND (2.2)	23	31
	01/13/16	8 - 9	N	ND (2.2)	4	160	ND (1.1)	ND (1.1)	ND (0.22)	11	11	5	8.1	5.2	0.11	ND (1.1)	8.6	ND (1.1)	ND (1.1)	ND (2.2)	21	28
Category 3																						
SS-NE	09/05/96	10	N	---	---	---	---	---	ND (1)	22	22	---	---	ND (5)	---	---	---	---	---	---	---	---
	09/05/96	10.5	N	---	---	---	---	---	ND (1)	14	14	---	---	**12**	---	---	---	---	---	---	---	---
SSWW	09/05/96	8	N	---	---	---	---	---	ND (1)	15	15	---	---	ND (5)	---	---	---	---	---	---	---	---

TABLE 3-34a
Sample Results: Metals
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-34b

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
AOC26-1	12/15/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.4	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.2
	12/15/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.9)
	12/15/15	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	12/15/15	9 - 10	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/10/16	24 - 25	N	ND (54)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	4.9	ND (54)	ND (54)	**62**
	01/10/16	49 - 50	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.7)	ND (5.3)	ND (5.3)	ND (6.1)
	01/11/16	74 - 75	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (4.5)	ND (5.2)	ND (5.2)	ND (6)
AOC26-2	01/14/16	0 - 0.5	N	ND (5.3)	7.8	ND (5.3)	ND (5.3)	ND (5.3)	12	ND (53)	99	ND (53)	ND (53)	12	ND (53)	22	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	21	**67**
	01/14/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (61)
	01/14/16	5 - 6	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (55)	ND (55)	ND (55)	ND (55)	ND (55)	ND (55)	ND (55)	ND (5.5)	ND (5.5)	ND (55)	ND (5.5)	ND (5.5)	ND (5.5)	ND (64)
AOC26-3	01/13/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/13/16	2 - 3	N	ND (5.2)	6.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	6.3	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	6.6	**58**
	01/13/16	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (6.5)
AOC26-4	01/13/16	0 - 0.5	N	ND (5.2)	6.3	ND (5.2)	ND (5.2)	ND (5.2)	44	ND (52)	120	ND (52)	ND (52)	41	ND (52)	98	ND (5.2)	ND (52)	ND (5.2)	37	85	**71**
	01/13/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/13/16	5 - 6	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/13/16	9 - 10	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	ND (5.3)	ND (59)
AOC26-5	01/13/16	0 - 0.5	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (6.5)
	01/13/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (6)
	01/13/16	5 - 6	N	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	ND (56)	ND (56)	ND (56)	ND (56)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	ND (56)	ND (5.6)	ND (5.6)	ND (5.6)	ND (62)
	01/13/16	8 - 9	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (62)

TABLE 3-34b

Sample Results: Polycyclic Aromatic Hydrocarbons
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-34c

Sample Results: Semivolatile and Volatile Organic Compounds
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Semivolatile and Volatile Organic Compounds (µg/kg)												
	Commercial Screening Level [1]:			1,800,000	1,500,000	670,000,000	25,000	9,900,000	190,000,000	6,400,000	24,000,000	12,000,000	5,400,000	2,500,000	2,800,000	2,500,000
	Background [2]:			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Ethyl- benzene	Isopropylbenzene	Methyl ethyl ketone	N-Butylbenzene	N-Propylbenzene	sec-Butylbenzene	Toluene	Xylene, m,p-	Xylene, o-	Xylenes, total
Category 1																
AOC26-1	12/15/15	2 - 3	N	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	ND (58)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)
	12/15/15	5 - 6	N	ND (5.9)	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	ND (59)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)	ND (5.9)
	12/15/15	9 - 10	N	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	ND (57)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)
	01/10/16	24 - 25	N	29	20	210	72	21	140	7.3	25	7.8	96	180	45	220
	01/10/16	49 - 50	N	ND (4.7)	ND (4.7)	ND (47) J	ND (4.7)	ND (4.7)	ND (47)	ND (4.7)	ND (4.7)	ND (4.7)	ND (4.7)	ND (4.7)	ND (4.7)	ND (4.7)
	01/11/16	74 - 75	N	ND (4.5)	ND (4.5)	ND (45) J	ND (4.5)	ND (4.5)	ND (45)	ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)
AOC26-2	01/14/16	2 - 3	N	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)
	01/14/16	5 - 6	N	ND (8.6)	ND (8.6)	ND (86)	ND (8.6)	ND (8.6)	ND (86)	ND (8.6)	ND (8.6)	ND (8.6)	ND (8.6)	ND (8.6)	ND (8.6)	ND (8.6)
AOC26-3	01/13/16	2 - 3	N	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)
	01/13/16	5 - 6	N	ND (8.1)	ND (8.1)	ND (81)	ND (8.1)	ND (8.1)	ND (81)	ND (8.1)	ND (8.1)	ND (8.1)	ND (8.1)	ND (8.1)	ND (8.1)	ND (8.1)
AOC26-4	01/13/16	2 - 3	N	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (68)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)	ND (6.8)
	01/13/16	5 - 6	N	ND (6.7)	ND (6.7)	ND (67)	ND (6.7)	ND (6.7)	ND (67)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)
	01/13/16	9 - 10	N	ND (7.2)	ND (7.2)	ND (72)	ND (7.2)	ND (7.2)	ND (72)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)
AOC26-5	01/13/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)
	01/13/16	5 - 6	N	ND (7.2)	ND (7.2)	ND (72)	ND (7.2)	ND (7.2)	ND (72)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)	ND (7.2)
	01/13/16	8 - 9	N	ND (7.5)	ND (7.5)	ND (75)	ND (7.5)	ND (7.5)	ND (75)	ND (7.5)	ND (7.5)	ND (7.5)	ND (400)	ND (7.5)	ND (7.5)	ND (7.5)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level or RWQCB ESL are circled.
Only detected SVOCs and VOCs are presented.

---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency
SVOCs	semivolatile organic compounds
VOCs	volatile organic compounds

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for SVOCs and VOCs.

TABLE 3-34d
Sample Results: Total Petroleum Hydrocarbons
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)				
			Commercial Screening Level [1]:	**NE**	**NE**	**3,900**	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**NE**	**NE**	**740**	**230**	**11,000**
			Background [3]:	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Total Petroleum Hydrocarbons**	**Total Recoverable Hydrocarbons**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
Category 1								
AOC26-1	12/15/15	0 - 0.5	N	---	---	---	ND (10)	15
	12/15/15	2 - 3	N	---	---	ND (1.2)	ND (10)	ND (10)
	12/15/15	5 - 6	N	---	---	ND (1.2)	ND (10)	ND (10)
	12/15/15	9 - 10	N	---	---	ND (1.2)	ND (10)	ND (10)
	01/10/16	24 - 25	N	---	---	68	3,100	1,700
	01/10/16	49 - 50	N	---	---	ND (1)	ND (11)	ND (11)
	01/11/16	74 - 75	N	---	---	ND (0.93)	ND (10)	ND (10)
AOC26-2	01/14/16	0 - 0.5	N	---	---	---	49	120
	01/14/16	2 - 3	N	---	---	ND (1.3)	170	580
	01/14/16	5 - 6	N	---	---	ND (1.5)	600	600
AOC26-3	01/13/16	0 - 0.5	N	---	---	---	14	67
	01/13/16	2 - 3	N	---	---	ND (1.3)	13	62
	01/13/16	5 - 6	N	---	---	ND (1.6)	27	50
AOC26-4	01/13/16	0 - 0.5	N	---	---	---	ND (10)	49
	01/13/16	2 - 3	N	---	---	ND (1.4)	ND (10)	ND (10)
	01/13/16	5 - 6	N	---	---	ND (1.3)	ND (10)	ND (10)
	01/13/16	9 - 10	N	---	---	ND (1.4)	580	530
AOC26-5	01/13/16	0 - 0.5	N	---	---	---	ND (11)	ND (11)
	01/13/16	2 - 3	N	---	---	ND (1.3)	110	170
	01/13/16	5 - 6	N	---	---	ND (1.4)	890	710
	01/13/16	8 - 9	N	---	---	ND (1.5)	2,600	2,400
Category 3								
SS1	01/16/97	5	N	---	78	---	---	---
	01/16/97	13	N	---	45	---	---	---
	01/16/97	15	N	---	29	---	---	---
	01/16/97	20	N	---	38	---	---	---
SS2	01/16/97	15	N	---	8,600	---	---	---
	01/16/97	20	N	---	8,800	---	---	---
SS3	01/16/97	15	N	---	390	---	---	---
	01/16/97	20	N	---	2,800	---	---	---
	01/16/97	27	N	---	9,700	---	---	---
	01/16/97	30	N	---	8,200	---	---	---
	01/16/97	35	N	---	8,100	---	---	---
	01/16/97	40	N	---	ND (22)	---	---	---
SS4	01/16/97	5	N	---	ND (21)	---	---	---
	01/16/97	10	N	---	ND (23)	---	---	---
	01/16/97	15	N	---	ND (21)	---	---	---
	01/16/97	20	N	---	ND (22)	---	---	---

TABLE 3-34d

Sample Results: Total Petroleum Hydrocarbons
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)				
			Commercial Screening Level [1]:	**NE**	**NE**	**3,900**	**1,100**	**140,000**
			RWQCB Environmental Screening Level [2]:	**NE**	**NE**	**740**	**230**	**11,000**
			Background [3]:	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Total Petroleum Hydrocarbons**	**Total Recoverable Hydrocarbons**	**TPH as gasoline**	**TPH as diesel**	**TPH as motor oil**
SS5	01/16/97	5	N	---	ND (21)	---	---	---
	01/16/97	10	N	---	ND (21)	---	---	---
	01/16/97	15	N	---	ND (20)	---	---	---
	01/16/97	20	N	---	ND (22)	---	---	---
SS-N-10.4	09/05/96	10.4	N	3,700	---	---	---	---
SS-NE	09/05/96	10	N	6,700	---	---	---	---
	09/05/96	10.5	N	15,000	---	---	---	---
SS-NW-10.0	09/05/96	10	N	5,700	---	---	---	---
SS-S-11.0	09/05/96	11	N	400	---	---	---	---
SS-SE-10.5	09/05/96	10.5	N	780	---	---	---	---
SS-SE-10.8	09/05/96	10.8	N	570	---	---	---	---
SS-SW-Comp	09/05/96	10.5	N	1,300	---	---	---	---
SSWE	09/05/96	9	N	1,800	---	---	---	---
SSWN	09/05/96	9	N	3,700	---	---	---	---
SSWS	09/05/96	8.5	N	3,100	---	---	---	---
SSWW	09/05/96	8	N	9,100	---	---	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-34e

Sample Results: General Chemistry Parameters
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**pH**
Category 1				
AOC26-1	12/15/15	0 - 0.5	N	9.5
	12/15/15	2 - 3	N	9.3
	12/15/15	5 - 6	N	9.4
	12/15/15	9 - 10	N	9.5
	01/10/16	24 - 25	N	8.9
	01/10/16	49 - 50	N	9
	01/11/16	74 - 75	N	8.6
AOC26-2	01/14/16	0 - 0.5	N	8.8
	01/14/16	2 - 3	N	8.3
	01/14/16	5 - 6	N	8.4
AOC26-3	01/13/16	0 - 0.5	N	8.9
	01/13/16	2 - 3	N	9
	01/13/16	5 - 6	N	8.6
AOC26-4	01/13/16	0 - 0.5	N	8.2
	01/13/16	2 - 3	N	8.6
	01/13/16	5 - 6	N	7.8
	01/13/16	9 - 10	N	8.5
AOC26-5	01/13/16	0 - 0.5	N	9.8
	01/13/16	2 - 3	N	9.5
	01/13/16	5 - 6	N	8
	01/13/16	8 - 9	N	7.8

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-34f
Sample Results: Volatile Organic Compounds in Soil Gas
AOC26 - Former Scrubber Oil Sump
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

		Location	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1
		Date	1/14/2016	1/14/2016	1/14/2016	1/14/2016	2/21/2017	2/21/2017	2/21/2017	2/21/2017
		Sample Type	N	N	N	FD	N	N	N	FD
		Depth (ft bgs)	5-6	24-25	49-50	50-60	5-6	24-25	49-50	50-60
Analyte [a] (μg/m^3)	Commercial/ Industrial Screening Level [b]	Proposed Commercial/ Industrial Screening Level [c]	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1
1,1,1 Trichloroethane	4,400,000	150000	4.1 U	4.04 U	4.1 U	4.37 U	3.74 U	36.9 U	3.66 U	36.9 U
1,1,2,2 Tetrachloroethane	210	7.0	5.14 U	5.08 U	5.14 U	5.49 U	4.7 U	46.3 U	4.6 U	46.3 U
1,1,2 Trichloroethane	770	26	4.1 U	4.04 U	4.1 U	4.37 U	3.74 U	36.9 U	3.66 U	36.9 U
1,1,2 Trichlorotrifluoroethane (Freon 113)	22,000,000	730000	5.74 U	5.67 U	5.74 U	6.13 U	5.25 U	51.7 U	5.13 U	51.7 U
1,1 Dichloroethane	7,700	260	3.03 U	2.99 U	3.03 U	3.23 U	2.77 U	27.3 U	2.71 U	27.3 U
1,1 Dichloroethene	310,000	10000	2.97 U	2.93 U	2.97 U	3.17 U	2.71 U	26.7 U	**4.57**	26.7 U
1,2,4 Trichlorobenzene	1,700	57	27.8 U	27.4 U	27.8 U	29.7 U	25.4 UJ	250 UJ	24.9 UJ	250 UJ
1,2,4 Trimethylbenzene	260,000	8700	3.69 U	3.64 U	3.69 U	3.94 U	3.37 U	33.2 U	3.3 U	33.2 U
1,2 Dibromoethane	20	0.67	5.76 U	5.68 U	5.76 U	6.14 U	5.26 U	51.8 U	5.15 U	51.8 U
1,2 Dichlorobenzene	880,000	29000	4.52 U	4.45 U	4.52 U	4.82 U	4.12 U	40.6 U	4.03 U	40.6 U
1,2 Dichloroethane	470	16	3.03 U	2.99 U	3.03 U	3.23 U	2.77 U	27.3 U	2.71 U	27.3 U
1,2 Dichloropropane	1,200	11	3.46 U	3.42 U	3.46 U	3.7 U	3.16 U	31.2 U	3.1 U	31.2 U
1,3,5 Trimethylbenzene	260,000	8700	3.69 U	3.64 U	3.69 U	3.94 U	3.37 U	33.2 U	3.3 U	33.2 U
1,3 Dichlorobenzene	--	--	**6.4 J**	**8.72 J**	**5.95 J**	**6.93 J**	4.12 U	40.6 U	4.03 U	40.6 U
1,4 Dichlorobenzene	1,100	37	4.52 U	4.45 U	4.52 U	4.82 U	4.12 U	40.6 U	4.03 U	40.6 U
2 Hexanone	130,000	4300	6.15 U	6.07 U	6.15 U	6.56 U	5.62 U	55.4 U	5.49 U	55.4 U
Acetone	140,000,000	4,700,000	**52 J**	**52.3 J**	**181 J**	**59.2 J**	**87.9**	**162 J**	**103**	**210 J**
Benzene	420	14	**3.35 J**	**59.5 J**	**53.3 J**	**52.3 J**	2.19 U	**178 J**	**5.99**	**174 J**
Bromodichloromethane	330	11	5.03 U	4.96 U	5.03 U	5.36 U	4.59 U	45.2 U	4.49 U	45.2 U
Bromoform	11,000	370	7.76 U	7.65 U	7.76 U	8.27 U	7.08 U	69.8 U	6.93 U	69.8 U
Bromomethane	22,000	730	2.91 U	2.87 U	2.91 U	3.1 U	2.66 U	26.2 U	2.6 U	26.2 U
Carbon disulfide	3,100,000	100,000	**4.06 J**	**71.4 J**	**144 J**	**73.5 J**	**4.74**	**63.5 J**	**5.09**	**61.8 J**
Carbon tetrachloride	290	10	4.73 U	4.66 U	**11.1 J**	5.04 U	4.32 U	42.5 U	**61.4**	42.5 U
Chloro methane	390,000	13000	**2.76 J**	**4.16 J**	**2.97 J**	**4.23 J**	1.41 U	13.9 U	1.38 U	13.9 U
Chlorobenzene	220,000	7,300	3.45 U	3.4 U	3.45 U	3.68 U	3.15 U	31 U	3.08 U	31 U
Chloroethane	44,000,000	1500000	1.98 U	1.95 U	1.98 U	2.11 U	1.81 U	17.8 U	1.77 U	17.8 U
Chloroform	530	18	3.66 U	3.61 U	3.66 U	3.9 U	3.34 U	32.9 U	**47.2**	32.9 U
cis 1,2 Dichloroethene	35,000	1200	2.97 U	2.93 U	2.97 U	3.17 U	2.71 U	26.7 U	2.65 U	26.7 U
cis 1,3 Dichloropropene	770	26	3.4 U	3.36 U	3.4 U	3.63 U	3.11 U	30.6 U	3.04 U	30.6 U
Dibromochloromethane	580	19	6.39 U	6.3 U	6.39 U	6.82 U	5.84 U	57.5 U	5.71 U	57.5 U
Dichlorodifluoromethane	440,000	15,000	3.7 U	3.66 U	3.7 U	3.95 U	3.38 U	33.3 U	3.31 U	33.3 U

TABLE 3-34f
Sample Results: Volatile Organic Compounds in Soil Gas
AOC26 - Former Scrubber Oil Sump
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

		Location	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1	AOC26-1
		Date	1/14/2016	1/14/2016	1/14/2016	1/14/2016	2/21/2017	2/21/2017	2/21/2017	2/21/2017
		Sample Type	N	N	N	FD	N	N	N	FD
		Depth (ft bgs)	5-6	24-25	49-50	50-60	5-6	24-25	49-50	50-60
Analyte [a] ($\mu g/m^3$)	Commercial/ Industrial Screening Level [b]	Proposed Commercial/ Industrial Screening Level [c]								
Ethyl benzene	4,900	160	3.26 U	**3.28 J**	3.26 U	3.47 U	2.97 U	**115 J**	2.91 U	**107 J**
Hexachlorobutadiene	560	19	16 U	15.8 U	16 U	17.1 U	14.6 U	144 U	14.3 U	144 U
Methyl ethyl ketone	22,000,000	730000	4.43 U	4.37 U	**6.15 J**	**5.9 J**	**25.9**	39.8 U	**38.3**	39.8 U
Methyl isobutyl ketone	13,000,000	430000	6.15 U	6.07 U	6.15 U	6.56 U	5.62 U	55.4 U	5.49 U	55.4 U
Methyl tert butyl ether (MTBE)	47,000	1600	10.8 U	10.7 U	10.8 U	11.5 U	9.88 U	97.3 U	9.66 U	97.3 U
Methylene chloride	12,000	400	5.21 U	5.14 U	5.21 U	5.56 U	4.75 U	46.8 U	4.65 U	46.8 U
Styrene	3,900,000	130,000	3.2 U	3.15 U	3.2 U	3.41 U	2.92 U	28.8 U	2.85 U	28.8 U
Tetrachloroethene	2,000	67	5.08 U	**10.7 J**	**5.08 U**	**6.62 J**	**10.1**	**115 J**	**344**	**111 J**
Toluene	1,300,000	43,000	**11.4 J**	**83.8 J**	**38.9 J**	**63.3 J**	2.58 U	**624 J**	**10**	**564 J**
trans 1,2 Dichloroethene	350,000	12000	2.97 U	2.93 U	2.97 U	3.17 U	2.71 U	26.7 U	2.65 U	26.7 U
trans 1,3 Dichloropropene	770	26	3.4 U	3.36 U	3.4 U	3.63 U	3.11 U	30.6 U	3.04 U	30.6 U
Trichloroethene	3,000	100	4.04 U	3.98 U	4.04 U	4.3 U	3.69 U	36.3 U	**7.56**	36.3 U
Trichlorofluoromethane (Freon 11)	5,300,000	180000	4.22 U	4.16 U	4.22 U	4.5 U	3.85 U	37.9 U	3.77 U	37.9 U
Vinyl chloride	160	5.3	1.92 U	1.89 U	1.92 U	2.05 U	1.75 U	17.3 U	1.72 U	17.3 U
Xylene, m,p	440,000	15000	6.51 U	6.42 U	6.51 U	6.94 U	5.95 U	**199 J**	5.82 U	**191 J**
Xylene, o	440,000	15000	3.26 U	3.21 U	3.26 U	3.47 U	2.97 U	**68 J**	2.91 U	**62.7 J**

Notes:
$\mu g/m^3$ = micrograms per cubic meter
AF = attenuation factor
DTSC = California Department of Toxic Substances Control
FD = field duplicate
ft bgs = feet below ground surface
J = concentration or reporting limit estimated by laboratory or data validation
N = primary sample
SL = screening level
U = not detected at the listed reporting limit
UJ = not detected, listed reporting limit estimated by laboratory or data validation
[a] All data presented are Category 1 data
[b] Soil gas screening levels ($\mu g/m^3$) calculated using 2011 DTSC AFs and DTSC 2018 recommended SLs
[c] Soil gas screening levels ($\mu g/m^3$) calculated using 2023 DTSC draft AFs and DTSC 2018 recommended SLs

Sources:
DTSC, 2011. Guidance for Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.
DTSC, 2018. Human Health Risk Assessment (HHRA) Note 3, DTSC-modified Screening Levels (DTSC-SLs). June.
DTSC and California Water Resources Control Boards, 2023. Supplemental Guidance: Screening and Evaluating Vapor Intrusion, Final Draft. February. Available online: https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/02/VI_SupGuid_Screening-Evaluating.pdf

TABLE 3-34g

Sample Results: Polychlorinated Biphenyls
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)							
		Commercial Screening Level[1]:		27,000	830	720	950	950	970	990	940
		Background[2]:		NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs**
Category 1											
AOC26-1	12/15/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	30	55.5
	12/15/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/15/15	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/15/15	9 - 10	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/10/16	24 - 25	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
	01/10/16	49 - 50	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/11/16	74 - 75	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC26-2	01/14/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	48	80	146
	01/14/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	120	145.5
	01/14/16	5 - 6	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	420	447
AOC26-3	01/13/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/13/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	28	33	78
	01/13/16	5 - 6	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC26-4	01/13/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	150	88	255
	01/13/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/13/16	5 - 6	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	30	ND (17)	55.5
	01/13/16	9 - 10	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC26-5	01/13/16	0 - 0.5	N	ND (19)	ND (37)	ND (19)	ND (19)	ND (19)	ND (19)	ND (19)	ND (38)
	01/13/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	120	145.5
	01/13/16	5 - 6	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	ND (18)	490	517
	01/13/16	8 - 9	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	510	537

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

* Reporting limits greater than or equal to the commercial screening level.
--- not analyzed

TABLE 3-34g

Sample Results: Polychlorinated Biphenyls
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is "R" qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-34h

Sample Results: Dioxins and Furans
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																	
			Commercial Screening Level [1]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**22**	**NE**	**NE**	**NE**	**220**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**5.58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Human**
Category 1																					
AOC26-4	01/13/16	0 - 0.5	N	600 J	52 J	3.7 J	5.5 J	4.2 J	19 J	4.6 J	11 J	0.92 J	ND (3.6) J	ND (1.6)	ND (60) J	ND (1.5) J	ND (0.71) J	2.1 J	4,300 J	73 J	**18**
AOC26-5	01/13/16	5 - 6	N	53 J	ND (0.8) J	ND (0.91) J	ND (2.5) J	ND (1.9) J	ND (2.4) J	ND (0.77) J	ND (2.4) J	ND (0.99) J	ND (2.6) J	ND (1.4) J	ND (0.85) J	ND (3.3) J	ND (1.7) J	ND (1.6) J	310 J	ND (7.6) J	4
	01/13/16	8 - 9	N	770 J	46 J	ND (2.6) J	4.6 J	2 J	16 J	ND (2.5) J	9.8 J	ND (0.21) J	3.4 J	ND (0.91)	ND (58) J	ND (1.3)	ND (1) J	ND (0.14) J	8,300 J	81 J	**21**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
ng/kg	nanograms per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
NA	not applicable
NE	not established
N	primary sample
ND	not detected at the listed reporting limit
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
TEQ Human	Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
USEPA	United States Environmental Protection Agency

1 Commercial screening level - for individual dioxins and furans, the lower of the commercial DTSC-SL and USEPA regional screening level is used. For TEQ human, the DTSC-SL is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are not established or not applicable.

TABLE 3-34i

Constituent Concentrations in Soil Compared to Screening Values
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Dioxins and Furans										
TEQ Human	ng/kg	2	3 / 3 (100%)	21	2	(5.58)	NA	(NA)	0	(220)
Metals										
Antimony	mg/kg	5	0 / 21 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	5	20 / 21 (95%)	8.8	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	5	20 / 21 (95%)	540	1	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	5	0 / 21 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	5	0 / 21 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	5	3 / 21 (14%)	0.75	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	5	20 / 21 (95%)	42	2	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	5	20 / 21 (95%)	13	1	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	5	20 / 21 (95%)	18	1	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	5	20 / 21 (95%)	19	5	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	5	10 / 21 (48%)	0.3	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	5	5 / 21 (24%)	2.3	3	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	5	20 / 21 (95%)	36	1	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	5	0 / 21 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	5	0 / 21 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	5	0 / 21 (0%)	ND (2.2) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	5	20 / 21 (95%)	48	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	5	20 / 21 (95%)	40	0	(58)	NA	(NA)	0	(350,000)
Volatile Organic Compounds										
1,2,4-Trimethylbenzene	µg/kg	5	1 / 16 (6.3%)	29	NA	(NE)	NA	(NA)	0	(1,800,000)
1,3,5-Trimethylbenzene	µg/kg	5	1 / 16 (6.3%)	20	NA	(NE)	NA	(NA)	0	(1,500,000)
Acetone	µg/kg	5	1 / 16 (6.3%)	210	NA	(NE)	NA	(NA)	0	(670,000,000)
Ethyl- benzene	µg/kg	5	1 / 16 (6.3%)	72	NA	(NE)	NA	(NA)	0	(25,000)
Isopropylbenzene	µg/kg	5	1 / 16 (6.3%)	21	NA	(NE)	NA	(NA)	0	(9,900,000)
Methyl ethyl ketone	µg/kg	5	1 / 16 (6.3%)	140	NA	(NE)	NA	(NA)	0	(190,000,000)

TABLE 3-34i

Constituent Concentrations in Soil Compared to Screening Values
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Volatile Organic Compounds										
N-Butylbenzene	µg/kg	5	1 / 16 (6.3%)	7.3	NA	(NE)	NA	(NA)	0	(6,400,000)
N-Propylbenzene	µg/kg	5	1 / 16 (6.3%)	25	NA	(NE)	NA	(NA)	0	(24,000,000)
sec-Butylbenzene	µg/kg	5	1 / 16 (6.3%)	7.8	NA	(NE)	NA	(NA)	0	(12,000,000)
Toluene	µg/kg	5	1 / 16 (6.3%)	96	NA	(NE)	NA	(NA)	0	(5,400,000)
Xylene, m,p-	µg/kg	5	1 / 16 (6.3%)	180	NA	(NE)	NA	(NA)	0	(2,500,000)
Xylene, o-	µg/kg	5	1 / 16 (6.3%)	45	NA	(NE)	NA	(NA)	0	(2,800,000)
Xylenes, total	µg/kg	5	1 / 16 (6.3%)	220	NA	(NE)	NA	(NA)	0	(2,500,000)
Polycyclic Aromatic Hydrocarbons										
2-Methyl naphthalene	µg/kg	5	3 / 21 (14%)	7.8	NA	(NE)	NA	(NA)	0	(3,000,000)
Benzo (a) anthracene	µg/kg	5	2 / 21 (9.5%)	44	NA	(NE)	NA	(NA)	0	(21,000)
Benzo (b) fluoranthene	µg/kg	5	3 / 21 (14%)	120	NA	(NE)	NA	(NA)	0	(21,000)
Chrysene	µg/kg	5	2 / 21 (9.5%)	41	NA	(NE)	NA	(NA)	0	(2,100,000)
Fluoranthene	µg/kg	5	4 / 21 (19%)	98	NA	(NE)	NA	(NA)	0	(30,000,000)
Naphthalene	µg/kg	5	1 / 21 (4.8%)	4.9	NA	(NE)	NA	(NA)	0	(17,000)
Phenanthrene	µg/kg	5	1 / 21 (4.8%)	37	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	5	3 / 21 (14%)	85	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	5	5 / 21 (24%)	71	4	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	5	4 / 21 (19%)	150	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	5	9 / 21 (43%)	510	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	5	10 / 21 (48%)	537	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	5	11 / 21 (52%)	3,100	NA	(NE)	5	(230)	2	(1,100)
TPH as motor oil	mg/kg	5	13 / 21 (62%)	2,400	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	5	1 / 16 (6.3%)	68	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-34i

Constituent Concentrations in Soil Compared to Screening Values
AOC 26 – Former Scrubber Oil Sump
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

TABLE 3-35a

Sample Results: Metals
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storag
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Commercial Screening Level [1]:				**470**	**0.36**	**220,000**	**210**	**7.3**	**6.3**	**170,000**	**350**	**47,000**	**320**	**4.5**	**5,800**	**3,100**	**5,800**	**1,500**	**12**	**1,000**	**350,000**
Background [2]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic [3]**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Category 1																					
Units4.3-1	12/07/15	0 - 1	N	ND (2.1)	3.4	120	ND (1.1)	ND (1.1)	0.26	19	5.4	14	5.9	ND (0.1)	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1)	24	31
	12/07/15	2 - 3	N	ND (2.1)	2.3	150	ND (1.1)	ND (1.1)	0.45	22	5.1	9.1	6.5	ND (0.11)	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1)	24	28
Units4.3-2	12/07/15	0 - 1	N	ND (2.1)	2.4	130	ND (1)	ND (1)	0.36	26	5.6	12	5.6	ND (0.1)	ND (1)	17	ND (1)	ND (1)	ND (2.1)	26	31
	12/07/15	2 - 3	N	ND (2.1) J	2.2	140	ND (1.1)	ND (1.1)	0.6	21	5	8.9	4.5	ND (0.11)	ND (1.1)	11	ND (1.1) J	ND (1.1) J	ND (2.1)	22	28

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial creening evel - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

3 Commercial screening level is below background value; therefore, arsenic results are only screened against the background value.

TABLE 3-35b

Sample Results: Contract Laboratory Program Inorganics
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Unit 4.5)
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Commercial Screening Level [1]:	**1,100,000**	**NE**	**820,000**	**NE**	**6,900**	**NE**	**NE**	**150**
			Background [2]:	**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Category 1											
Units4.3-1	12/07/15	0 - 1	N	8,000	20,000	16,000	6,100	190	1,700	340	ND (0.212)
	12/07/15	2 - 3	N	7,700	33,000	14,000	5,800	180	1,900	180	ND (0.214)
Units4.3-2	12/07/15	0 - 1	N	7,900	18,000	15,000	6,000	200	2,100	300	ND (0.21)
	12/07/15	2 - 3	N	6,700	23,000	13,000	5,300	160	1,800	280	ND (0.213)

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

J	concentration or reporting limit estimated by laboratory or data validation
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 CH2M. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May."

TABLE 3-35c

Sample Results: Polycyclic Aromatic Hydrocarbons
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Unit 4
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																		
Commercial Screening Level[1]:				**73,000**	**3,000,000**	**45,000,000**	**45,000,000**	**230,000,000**	**21,000**	**2,100**	**21,000**	**23,000,000**	**210,000**	**2,100,000**	**2,100**	**30,000,000**	**30,000,000**	**21,000**	**17,000**	**230,000,000**	**23,000,000**	**2,100**
Background[2]:				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**B(a)P Equivalent**
Category 1																						
Units4.3-1	12/07/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	8.8 J	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	12 J	**61**
	12/07/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (530)	ND (530)	ND (530)	ND (530)	ND (53)	ND (530)	49	ND (5.3)	ND (530)	ND (4.6)	12	48	**590**
Units4.3-2	12/07/15	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (520)	ND (520)	ND (520)	ND (520)	ND (52)	ND (520)	20 J	ND (5.2)	ND (520)	ND (5.2)	6.3 J	18 J	**580**
	12/07/15	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (350)	ND (350)	ND (350)	ND (350)	ND (53)	ND (350)	17 J	ND (5.3)	ND (350)	ND (4.8)	ND (5.3)	18 J	**390**

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.
B(a)P EQ Equivalent is calculated using half the reporting limit for non detects.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
N	primary sample
NA	not applicable
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
R	The result has been rejected; identification and/quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample analyzed beyond the recommended hold time).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values are either not established or not applicable.

Calculations:

B(a)P equivalent was calculated using relative potency factors for carcinogenic PAHs from U.S. Environmental Protection Agency. 1993. EPA’s Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. EPA 600/R-93-089. July.

Calculations of LMW-PAHs and HMW-PAHs were consistent with U.S. Environmental Protection Agency. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) – Interim Final. OSWER Directive 9285.7-78. June.

TABLE 3-35d

Sample Results: Total Petroleum Hydrocarbons
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Unit 4
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)		
Commercial Screening Level [1]:				**NE**	**1,100**	**140,000**
RWQCB Environmental Screening Level [2]:				**NE**	**230**	**11,000**
Background [3]:				**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH-extractables**	**TPH as diesel**	**TPH as motor oil**
Category 1						
Units4.3-1	12/07/15	0 - 1	N	---	18	170
	12/07/15	2 - 3	N	---	24	370
Units4.3-2	12/07/15	0 - 1	N	---	53	710
	12/07/15	2 - 3	N	---	22	290
Category 3						
OWS PI-1	11/17/89		N	---	ND (5)	1,200
OWS Valve PI-1	11/17/89		N	---	ND (5)	850
OWS-10	11/18/89		N	ND (2)	---	---
OWS-11	11/18/89		N	ND (1)	---	---
OWS-12 Deeper	03/20/90		N	18	---	---

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Levels
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

3 Background values have not been established for TPHs.

TABLE 3-35e

Sample Results: General Chemistry Parameters
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storag
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry (pH units)
Comercial Regional Screening Levels [1]:				**NE**
DTSC-SL [2]:				**NE**
Background [3]:				**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	pH
Category 1				
Units4.3-1	12/07/15	0 - 1	N	9.4
	12/07/15	2 - 3	N	9
Units4.3-2	12/07/15	0 - 1	N	9.2
	12/07/15	2 - 3	N	8.6

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the Background value are bolded. Results greater than the commercial screening level or RWQCB ESL are circled.

*	Reporting limits greater than or equal to the Commercial Screening Level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used where available. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for general chemistry parameters.

TABLE 3-35f

Sample Results: Polychlorinated Biphenyls

Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Uni

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PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Commercial Screening Level [1]:	**27,000**	**830**	**720**	**950**	**950**	**970**	**990**	**970**	**970**	**940**
			Background [2]:	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
Category 1													
Units4.3-1	12/07/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/07/15	2 - 3	N	ND (17) J	ND (35)	ND (17)	ND (17)	ND (17)	130	69 J	ND (17)	ND (17)	216
Units4.3-2	12/07/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	12/07/15	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	43	45	ND (17)	ND (17)	105

Notes:

Category 1: Validated data suitable for all uses, including risk assessment and remedial action decisions.
Category 2: Validated data suitable for use in characterization of the chemicals of potential concern at the facility and to help define the nature and extent of contamination.
Category 3: Validated data suitable only for use in qualitative characterization of the nature and extent of contamination.

Results greater than the commercial screening level are circled.

*	Reporting limits greater than or equal to the commercial screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
CHHSL	California human health screening levels
DTSC	California Department of Toxic Substances Control
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
JR	estimated value, one or more input values is “R” qualified.
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
R	The result has been rejected; identification and/or quantitation could not be verified because critical QC specifications were not met (e.g., a non-detect result obtained for an archive sample following a hold time of greater than one year).
USEPA	United States Environmental Protection Agency

1 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used. Sources: California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January. United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

2 Background values have not been established for polychlorinated biphenyls.

TABLE 3-35g

Constituent Concentrations in Soil Compared to Screening Values
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Unit 4.5)
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Metals										
Antimony	mg/kg	2	0 / 4 (0%)	ND (2.1) ‡	NA	(NE)	NA	(NA)	0	(470)
Arsenic	mg/kg	2	4 / 4 (100%)	3.4	0	(11)	NA	(NA)	0	(0.36) *
Barium	mg/kg	2	4 / 4 (100%)	150	0	(410)	NA	(NA)	0	(220,000)
Beryllium	mg/kg	2	0 / 4 (0%)	ND (1.1) ‡	0	(0.672)	NA	(NA)	0	(210)
Cadmium	mg/kg	2	0 / 4 (0%)	ND (1.1) ‡	0	(1.1)	NA	(NA)	0	(7.3)
Chromium, Hexavalent	mg/kg	2	4 / 4 (100%)	0.6	0	(0.83)	NA	(NA)	0	(6.3)
Chromium, total	mg/kg	2	4 / 4 (100%)	26	0	(39.8)	NA	(NA)	0	(170,000)
Cobalt	mg/kg	2	4 / 4 (100%)	5.6	0	(12.7)	NA	(NA)	0	(350)
Copper	mg/kg	2	4 / 4 (100%)	14	0	(16.8)	NA	(NA)	0	(47,000)
Lead	mg/kg	2	4 / 4 (100%)	6.5	0	(8.39)	NA	(NA)	0	(320)
Mercury	mg/kg	2	0 / 4 (0%)	ND (0.11) ‡	NA	(NE)	NA	(NA)	0	(4.5)
Molybdenum	mg/kg	2	0 / 4 (0%)	ND (1.1)	0	(1.37)	NA	(NA)	0	(5,800)
Nickel	mg/kg	2	4 / 4 (100%)	17	0	(27.3)	NA	(NA)	0	(3,100)
Selenium	mg/kg	2	0 / 4 (0%)	ND (1.1)	0	(1.47)	NA	(NA)	0	(5,800)
Silver	mg/kg	2	0 / 4 (0%)	ND (1.1)	NA	(NE)	NA	(NA)	0	(1,500)
Thallium	mg/kg	2	0 / 4 (0%)	ND (2.1) ‡	NA	(NE)	NA	(NA)	0	(12)
Vanadium	mg/kg	2	4 / 4 (100%)	26	0	(52.2)	NA	(NA)	0	(1,000)
Zinc	mg/kg	2	4 / 4 (100%)	31	0	(58)	NA	(NA)	0	(350,000)
Contract Laboratory Program Inorganics										
Aluminum	mg/kg	2	4 / 4 (100%)	8,000	0	(16,400)	NA	(NA)	0	(1,100,000)
Calcium	mg/kg	2	4 / 4 (100%)	33,000	0	(66,500)	NA	(NA)	NA	(NE)
Iron	mg/kg	2	4 / 4 (100%)	16,000	0	(29,303)	NA	(NA)	0	(820,000)
Magnesium	mg/kg	2	4 / 4 (100%)	6,100	0	(12,100)	NA	(NA)	NA	(NE)
Manganese	mg/kg	2	4 / 4 (100%)	200	0	(402)	NA	(NA)	0	(6,900)
Potassium	mg/kg	2	4 / 4 (100%)	2,100	0	(4,400)	NA	(NA)	NA	(NE)
Sodium	mg/kg	2	4 / 4 (100%)	340	0	(2,070)	NA	(NA)	NA	(NE)
Cyanide	mg/kg	2	0 / 4 (0%)	ND (0.214)	NA	(NE)	NA	(NA)	0	(150)

TABLE 3-35g

Constituent Concentrations in Soil Compared to Screening Values
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Unit 4.5)
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Number of Locations	Frequency of Detection	Maximum Detected Value	Background Value (BK) [1] # of Exceedences [4]	(BK)	RWQCB Environmental Screening Levels (ESL) [2] # of Exceedences [5]	(ESL)	Commercial Screening Level (CSL) [3] # of Exceedences [5]	(CSL)
Polycyclic Aromatic Hydrocarbons										
Fluoranthene	µg/kg	2	4 / 4 (100%)	49	NA	(NE)	NA	(NA)	0	(30,000,000)
Phenanthrene	µg/kg	2	2 / 4 (50%)	12	NA	(NE)	NA	(NA)	0	(230,000,000)
Pyrene	µg/kg	2	4 / 4 (100%)	48	NA	(NE)	NA	(NA)	0	(23,000,000)
B(a)P Equivalent	µg/kg	2	4 / 4 (100%)	590	4	(55)	NA	(NA)	0	(2,100)
Polychlorinated biphenyls										
Aroclor 1254	µg/kg	2	2 / 4 (50%)	130	NA	(NE)	NA	(NA)	0	(970)
Aroclor 1260	µg/kg	2	2 / 4 (50%)	69	NA	(NE)	NA	(NA)	0	(990)
Total PCBs	µg/kg	2	2 / 4 (50%)	216	NA	(NE)	NA	(NA)	0	(940)
Total Petroleum Hydrocarbons										
TPH as diesel	mg/kg	2	4 / 4 (100%)	53	NA	(NE)	0	(230)	0	(1,100)
TPH as motor oil	mg/kg	2	4 / 4 (100%)	710	NA	(NE)	0	(11,000)	0	(140,000)
TPH as gasoline	mg/kg	2	0 / 2 (0%)	ND (0.92)	NA	(NE)	0	(740)	0	(3,900)

TABLE 3-35g

Constituent Concentrations in Soil Compared to Screening Values
Units 4.3 - 4.5 – Oily Water Holding Tank (Unit 4.3), Oil/Water Separator (Unit 4.4), and Portable Waste Oil Storage Tank (Unit 4.5)
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Notes

Soil sample counts presented do not include duplicate (quality control) samples. At locations where duplicate samples were collected, the higher of the two values is considered
All statistics presented in this table consider Category 1 and Category 2 data only.
* Number of exceedances are calculated using background value because it is greater than the respective screening level.

‡ Maxiumum Reporting Limit greater than or equal to the ISL

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
BK	Background Value
CSL	Commercial Screening Level
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ISL	Interim Screening Level
NA	not applicable
ND	not detected in any of the samples
NE	not established
RWQCB	Regional Water Quality Control Board
SL	screening level
USEPA	United States Environmental Protection Agency

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.) or ambient threshold value (CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

2 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” Febr

3 Commercial screening level - the lower of the commercial DTSC-SL and USEPA regional screening level is used, except for TEQ human, where the DTSC-SL is used. "

4 Number of exceedences are the number of detections exceeding the background threshold value (BTV).

5 Number of exceedences are the number of detections that are equal to or exceeds the screening level (ecological comparison value, residential reporting limit, commercial reporting limit or interim screening level) or otherwise noted.

Table 3-36a
Soil Screening Levels, Metals
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residential Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
Antimony	31	NE	0.285	NE	0.285	470	NC	NC	670	2.8	76
Arsenic	0.68	0.11	11.4	11	11	0.36	NC	NC	1.5	128	1.1
Barium	15,000	NE	330	410	410	220,000	NC	NC	SC(150,000)	3666	53,000
Berylium	160	15	23.3	0.672	0.672	210	NC	NC	NC	29	NC
Cadmium	71	5.2	0.0151	1.1	1.1	7.3	NC	NC	110	5.9	52
Chromium, Hexavalent	0.3	NE	139.6	0.83	0.83	6.3	3.1 [a]	NC	3.1	342	1.6
Chromium, Total	120,000	36,000	36.3	39.8	39.8	170,000	NC	145	SC(2,500,000)	145	SC(2,800,000)
Cobalt	23	NE	13	12.7	12.7	350	NC	NC	92	464	28
Copper	3,100	NE	20.6	16.8	16.8	47,000	NC	145	67,000	109	76,000
Lead	400	80	0.0166	8.39	8.39	320	NC	NC	1,100	36	990
Mercury	11	1	0.0125	NE	0.0125	4.5	NC	NC	270	1	220
Molybdenum	390	NE	2.25	1.37	1.37	5,800	NC	NC	8,300	22	9,500
Nickel	1,500	490	0.607	27.3	27.3	3,100	NC	NC	3,200	16	980
Selenium	390	NE	0.177	1.47	1.47	5,800	NC	NC	NC	2.3	NC
Silver	390	390	5.15	NE	5.15	1,500	NC	NC	8,300	52	9,500
Thallium	0.78	NE	2.32	NE	0.78	12	NC	NC	17	12	19
Vanadium	390	390	13.9	52.2	52.2	1,000	NC	NC	8,300	28	2,400
Zinc	23,000	NE	0.164	58	58	350,000	NC	NC	SC(500,000)	1050	SC(570,000)

Notes
Screening levels in miligrams per kilogram (mg/kg)
[a] Based on lowest recreator value
[b] Based on lowest wildlife value
[c] Based on lowest worker value
[d] Based on OHV rider at $1x10^{-6}$ risk
NC = not calculated
NE = not established
RBRG = risk-based remedial goal
RBC = risk-based concentration
SC() = RBC is greater than the theoretical soil saturation limit for that compound or the threoretical ceiling limit of 100,000 mg/kg

Table 3-36b
Soil Screening Levels, Contract Laboratory Program Inorganics
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
Aluminum	77,000	NE	NE	16,400	16,400	110,000	NC	NC	NC	NC	NC
Calcium	NE	NE	NE	66,500	66,500	NE	NC	NC	NC	NC	NC
Iron	55,000	NE	NE	29,303	29,303	820,000	NC	NC	NC	NC	NC
Magnesium	NE	NE	NE	12,100	12,100	NE	NC	NC	NC	NC	NC
Manganese	1,800	1,800	220	402	402	6,900	NC	NC	26,000	17,203	2,300
Potassium	NE	NE	NE	4,400	4,400	NE	NC	NC	NC	NC	NC
Sodium	NE	NE	NE	2,070	2,070	NE	NC	NC	NC	NC	NC
Cyanide	23	NE	0.9	NE	0.9	150	NC	NC	1,000	23	4,100

Notes

Screening levels in miligrams per kilogram (mg/kg)

[a] Based on lowest recreator value

[b] Based on lowest wildlife value

[c] Based on lowest worker value

NC = not calculated

NE = not established

RBRG = risk-based remedial goal

RBC = risk-based concentration

Table 3-36c
Soil Screening Levels, Polycyclic Aromatic Hydrocarbons
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
1-Methylnaphthalene	18,000	NE	NE	NE	18,000	73,000	NC	NC	210	NC	130,000
2-Methylnaphthalene	240,000	NE	NE	NE	240,000	3,000,000	NC	NC	SC(4,100,000)	NC	SC(1,900,000)
Acenaphthene	3,600,000	NE	NE	NE	3,600,000	45,000,000	NC	NC	SC(67,000,000)	NC	SC(96,000,000)
Acenaphthylene	3,600,000	NE	NE	NE	3,600,000	45,000,000	NC	NC	SC(72,000,000)	NC	SC(98,000,000)
Anthracene	18,000,000	NE	NE	NE	18,000,000	230,000,000	NC	NC	SC(350,000,000)	NC	SC(490,000,000)
Benzo(a)anthracene	1,100	NE	NE	NE	1,100	21,000	NC	NC	SC(36,000,000)	NC	SC(21,000,000)
Benzo(a)pyrene	110	NE	NE	NE	110	2,100	NC	NC	SC(300,000)	NC	SC(43,000)
Benzo(b)fluoranthene	1,100	NE	NE	NE	1,100	21,000	NC	NC	SC(36,000,000)	NC	SC(21,000,000)
Bengo(ghi)perylene	1,800,000	NE	NE	NE	1,800,000	23,000,000	NC	NC	SC(36,000,000)	NC	SC(21,000,000)
Benzo(k)fluoranthene	11,000	NE	NE	NE	11,000	210,000	NC	NC	SC(36,000,000)	NC	SC(21,000,000)
Chrysene	110,000	NE	NE	NE	110,000	2,100,000	NC	NC	SC(36,000,000)	NC	SC(21,000,000)
Dibenzo(ah)anthracene	110	NE	NE	NE	110	2,100	NC	NC	SC(360,000)	NC	SC(43,000)
Fluoranthene	2,400,000	NE	NE	NE	2,400,000	30,000,000	NC	NC	SC(48,000,000)	NC	SC(65,000,000)
Fluorene	2,400,000	NE	NE	NE	2,400,000	30,000,000	NC	NC	SC(46,000,000)	NC	SC(65,000,000)
Indeno(1,2,3-cd)pyrene	1,100	NE	NE	NE	1,100	21,000	NC	NC	SC(36,000,000)	NC	SC(21,000,000)
Naphthalene	3,800	NE	NE	NE	3,800	17,000	NC	NC	48,000	NC	30,000
Phenanthrene	18,000,000	NE	NE	NE	18,000,000	230,000,000	NC	NC	SC(360,000,000)	NC	SC(490,000,000)
Pyrene	1,800,000	NE	NE	NE	1,800,000	23,000,000	NC	NC	SC(36,000,000)	NC	SC(49,000,000)
PAH low molecular weight	NE	NE	10,000	NE	10,000	NA	NC	NC	NC	397,000	NC
PAH high molecular weight	NE	NE	1,160	NE	1,160	NA	NC	NC	NC	5,800	NC
B(a)Pequivalent	NE	NE	NE	55	110	2,100	NC	NC	2,300	NC	3,800

Notes
Screening levels in micrograms per kilogram (µg/kg)
[a] Based on lowest recreator value
[b] Based on lowest wildlife value
[c] Based on lowest worker value
NC = not calculated
NE = not established
RBRG = risk-based remedial goal
RBC = risk-based concentration
SC() = RBC is greater than the theoretical soil saturation limit for that compound or the threoretical ceiling limit of 100,000 mg/kg

Table 3-36d
Soil Screening Levels, Total Petroleum Hydrocarbons
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	RWQCB Environmental Screening Level	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
TPH as diesel	NE	NE	230	NE	NE	230	1,100	NC	NC	SC(5,700)	NC	SC(1,600)
TPH as motor oil	NE	NE	11,000	NE	NE	11,000	140,000	NC	NC	SC(230,000)	NC	SC(150,000)
TPH as gasoline	NE	NE	740	NE	NE	740	3,900	NC	NC	NC	NC	NC

Notes
Screening levels in miligrams per kilogram (mg/kg)
[a] Based on lowest recreator value
[b] Based on lowest wildlife value
[c] Based on lowest worker value
NC = not calculated
NE = not established
RBRG = risk-based remedial goal
RBC = risk-based concentration
RWQCB = Regional Water Quality Control Board
SC() = RBC is greater than the theoretical soil saturation limit for that compound or the threoretical ceiling limit of 100,000 mg/kg

Table 3-36e
Soil Screening Levels, Pesticides
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
4,4-DDD	1,900	NE	2.1	NE	2.1	9,600	NC	NC	NC	NC	NC
4,4-DDE	2,000	NE	2.1	NE	2.1	9,300	NC	NC	SC(37,000)	20	24,000
4,4-DDT	1,900	NE	2.1	NE	2.1	8,500	NC	NC	SC(39,000)	380	SC(24,000)
Aldrin	39	NE	NE	NE	39	180	NC	NC	NC	NC	NC
alpha-BHC	86	300	NE	NE	86	360	NC	NC	NC	NC	NC
alpha-Chlordane	1,700	440	470	NE	440	1,500	NC	NC	10,000	1,900	6,400
beta-BHC	300	300	NE	NE	300	370	NC	NC	NC	NC	NC
delta-BHC	300	300	NE	NE	300	370	NC	NC	NC	NC	NC
Dieldrin	34	NE	5	NE	5	140	NC	NC	820	10	520
Endo sulfan I	470,000	NE	NE	NE	470,000	7,000,000	NC	NC	NC	NC	NC
Endo sulfan II	470,000	NE	NE	NE	470,000	7,000,000	NC	NC	NC	NC	NC
Endosulfan sulfate	470,000	NE	NE	NE	470,000	7,000,000	NC	NC	NC	NC	NC
Endrin	19,000	NE	NE	NE	19,000	250,000	NC	NC	NC	NC	NC
Endrin aldehyde	19,000	NE	NE	NE	19,000	250,000	NC	NC	NC	NC	NC
Endrin ketone	19,000	NE	NE	NE	19,000	250,000	NC	NC	NC	NC	NC
gamma-BHC	570	300	NE	NE	300	370	NC	NC	NC	NC	NC
gamma-Chlordane	1,700	440	470	NE	440	1,500	NC	NC	10,000	1,900	6,400
Heptachlor	130	NE	NE	NE	130	630	NC	NC	NC	NC	NC
Heptachlor Expoxide	70	NE	NE	NE	70	330	NC	NC	NC	NC	NC
Methoxychlor	320,000	NE	NE	NE	320,000	4,100,000	NC	NC	NC	NC	NC
Toxaphene	490	NE	NE	NE	490	2,100	NC	NC	NC	NC	NC

Notes
Screening levels in micrograms per kilogram (µg/kg)
[a] Based on lowest recreator value
[b] Based on lowest wildlife value
[c] Based on lowest worker value
NC = not calculated
NE = not established
RBRG = risk-based remedial goal
RBC = risk-based concentration
SC() = RBC is greater than the theoretical soil saturation limit for that compound or the threoretical ceiling limit of 100,000 mg/kg

Table 3-36f
Soil Screening Levels, Polychlorinated Biphenyls
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
Aroclor 1016	4,100	NE	NE	NE	4,100	27,000	NC	NC	NC	NC	NC
Aroclor 1221	200	NE	NE	NE	200	830	NC	NC	NC	NC	NC
Aroclor 1232	170	NE	NE	NE	170	720	NC	NC	NC	NC	NC
Aroclor 1242	230	NE	NE	NE	230	950	NC	NC	NC	NC	NC
Aroclor 1248	230	NE	NE	NE	230	950	NC	NC	NC	NC	NC
Aroclor 1254	240	NE	NE	NE	240	970	NC	NC	NC	NC	NC
Aroclor 1260	240	NE	NE	NE	240	990	NC	NC	NC	NC	NC
Aroclor 1262	240	NE	NE	NE	240	970	NC	NC	NC	NC	NC
Aroclor 1268	240	NE	NE	NE	240	970	NC	NC	NC	NC	NC
Total PCBs	230	NE	204	NE	204	940	NC	NC	3,100	1,400	1,900

Notes
Screening levels in micrograms per kilogram (µg/kg)
[a] Based on lowest recreator value
[b] Based on lowest wildlife value
[c] Based on lowest worker value
NC = not calculated
NE = not established
RBRG = risk-based remedial goal
RBC = risk-based concentration

Table 3-36g
Soil Screening Levels, Dioxins and Furans
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residential Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
1,2,3,4,6,7,8-HpCDD	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,4,7,8-HxCDD	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,4,7,8-HxCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,6,7,8-HxCDD	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,6,7,8-HxCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,7,8,9-HxCDD	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,7,8,9-HxCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
1,2,3,7,8-PeCDD	4.8	NE	NE	NE	4.8	22	NC	NC	NC	NC	NC
1,2,3,7,8-PeCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
2,3,4,6,7,8-HxCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
2,3,4,7,8-PeCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
2,3,7,8-TCDD	4.8	NE	NE	NE	4.8	22	NC	NC	NC	NC	NC
2,3,7,8-TCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
OCDD	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
OCDF	NE	NE	NE	NE	NE	NE	NC	NC	NC	NC	NC
TEQ Avian	NE	NE	16	5.58	16	NA	NA	NC	NA	217	NA
TEQ Human	4.8	50	NE	5.58	50	220	100 [d]	NC	100	NA	83
TEQ Mammals	NE	NE	1.6	5.58	5.58	NA	NA	190-360 [e]	NA	192	NA

Notes
Screening levels in micrograms per kilogram (µg/kg)
[a] Based on lowest recreator value
[b] Based on lowest wildlife value
[c] Based on lowest worker value
[d] Based on hiker at $1x10^{-6}$ risk
[e] Based on desert shrew
NA = not applicable
NC = not calculated
NE = not established
RBRG = risk-based remedial goal
RBC = risk-based concentration
SC() = RBC is greater than the theoretical soil saturation limit for that compound or the threoretical ceiling limit of 100,000 mg/kg

Table 3-36h
Soil Screening Levels, Semivolatile and Volatile Organic Compounds
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
1,1,1,2-Tetrachloroethane	2,000	2,000	NE	NE	2,000	8,800	NC	NC	NC	NC	NC
1,1,1-Trichloroethane	8,100,000	1,700,000	NE	NE	1,700,000	7,300,000	NC	NC	NC	NC	NC
1,1,2,2-Tetrachloroethane	600	610	NE	NE	600	2,700	NC	NC	NC	NC	NC
1,1,2-Trichloroethane	1,100	NE	NE	NE	1,100	5,000	NC	NC	NC	NC	NC
1,1,2-Trichlorotrifluoroethane	6,700,000	NE	NE	NE	6,700,000	28,000,000	NC	NC	NC	NC	NC
1,1´-Biphenyl	47,000	NE	NE	NE	47,000	200,000	NC	NC	NC	NC	NC
1,1-Dichloroethane	3,600	3,600	NE	NE	3,600	16,000	NC	NC	NC	NC	NC
1,1-Dichloroethene	230,000	NE	NE	NE	230,000	1,000,000	NC	NC	NC	NC	NC
1,1-Dichloropropene	1,800	580	NE	NE	580	2,600	NC	NC	NC	NC	NC
1,2,3-Trichlorobenzene	63,000	63,000	NE	NE	63,000	310,000	NC	NC	NC	NC	NC
1,2,3-Trichloropropane	5.1	1.5	NE	NE	1.5	21	NC	NC	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	23,000	NE	NE	NE	23,000	350,000	NC	NC	NC	NC	NC
1,2,4-Trichlorobenzene	24,000	NE	NE	NE	24,000	110,000	NC	NC	NC	NC	NC
1,2,4-Trimethylbenzene	300,000	NE	NE	NE	300,000	1,800,000	NC	NC	NC	NC	NC
1,2-Dibromo-3-chloropropane	5.3	NE	NE	NE	5.3	64	NC	NC	NC	NC	NC
1,2-Dibromoethane	36	37	NE	NE	36	160	NC	NC	NC	NC	NC
1,2-Dichlorobenzene	1,800,000	NE	NE	NE	1,800,000	9,300,000	NC	NC	NC	NC	NC
1,2-Dichloroethane	460	NE	NE	NE	460	2,000	NC	NC	NC	NC	NC
1,2-Dichloropropane	2,500	NE	NE	NE	2,500	11,000	NC	NC	NC	NC	NC
1,2-Diphenylhydrazine	680	NE	NE	NE	680	2,900	NC	NC	NC	NC	NC
1,3,5-Trimethylbenzene	270,000	NE	NE	NE	270,000	1,500,000	NC	NC	NC	NC	NC
1,3-Dichlorobenzene	2,600	NE	NE	NE	2,600	11,000	NC	NC	NC	NC	NC
1,3-Dichloropropane	1,600,000	420,000	NE	NE	420,000	2,200,000	NC	NC	NC	NC	NC
1,4-Dichlorobenzene	2,600	NE	NE	NE	2,600	11,000	NC	NC	NC	NC	NC
1,4-Dioxane	5,300	NE	NE	NE	5,300	24,000	NC	NC	NC	NC	NC
2,2-Dichloropropane	2,500	NE	NE	NE	2,500	11,000	NC	NC	NC	NC	NC
2,3,4,6-Tetrachlorophenol	1,900,000	NE	NE	NE	1,900,000	25,000,000	NC	NC	NC	NC	NC
2,4,5-Trichlorophenol	6,300,000	NE	NE	NE	6,300,000	82,000,000	NC	NC	NC	NC	NC
2,4,6-Trichlorophenol	49,000	7,500	NE	NE	7,500	21,000	NC	NC	NC	NC	NC
2,4-Dichlorophenol	190,000	NE	NE	NE	190,000	2,500,000	NC	NC	NC	NC	NC
2,4-Dimethylphenol	1,300,000	NE	NE	NE	1,300,000	16,000,000	NC	NC	NC	NC	NC
2,4-Dinitrophenol	130,000	NE	NE	NE	130,000	1,600,000	NC	NC	NC	NC	NC
2,4-Dinitrotoluene	1,700	NE	NE	NE	1,700	7,400	NC	NC	NC	NC	NC
2,6-Dinitrotoluene	360	NE	NE	NE	360	1,500	NC	NC	NC	NC	NC
2-Chloro naphthalene	4,800,000	NE	NE	NE	4,800,000	60,000,000	NC	NC	NC	NC	NC
2-Chlorophenol	390,000	NE	NE	NE	390,000	5,800,000	NC	NC	NC	NC	NC
2-Chlorotoluene	1,600,000	480,000	NE	NE	480,000	2,600,000	NC	NC	NC	NC	NC
2-Hexanone	200,000	NE	NE	NE	200,000	1,300,000	NC	NC	NC	NC	NC
2-Methylphenol	3,200,000	NE	NE	NE	3,200,000	41,000,000	NC	NC	NC	NC	NC
2-Naphthylamine	300	NE	NE	NE	300	1,300	NC	NC	NC	NC	NC

Table 3-36h
Soil Screening Levels, Semivolatile and Volatile Organic Compounds
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
2-Nitroaniline	630,000	NE	NE	NE	630,000	8,000,000	NC	NC	NC	NC	NC
2-Nitrophenol	130,000	NE	NE	NE	130,000	1,600,000	NC	NC	NC	NC	NC
3,3-Dichlorobenzidene	1,200	1,200	NE	NE	1,200	1,200	NC	NC	NC	NC	NC
3-Nitroaniline	27,000	NE	NE	NE	27,000	110,000	NC	NC	NC	NC	NC
4,6-Dinitro-2-methylphenol	5,100	NE	NE	NE	5,100	66,000	NC	NC	NC	NC	NC
4-Bromophenyl phenyl ether	160,000	NE	NE	NE	160,000	2,300,000	NC	NC	NC	NC	NC
4-Chloro-3-methylphenol	6,300,000	NE	NE	NE	6,300,000	82,000,000	NC	NC	NC	NC	NC
4-Chloroaniline	2,700	NE	NE	NE	2,700	11,000	NC	NC	NC	NC	NC
4-Chlorophenyl phenyl ether	3,100,000	NE	NE	NE	3,100,000	47,000,000	NC	NC	NC	NC	NC
4-Isopropyltoluene	1,900,000	NE	NE	NE	1,900,000	9,900,000	NC	NC	NC	NC	NC
4-Methylphenol	6,300,000	NE	500	NE	500	82,000,000	NC	NC	SC(130,000)	NC	SC(89,000)
4-Nitroaniline	27,000	NE	NE	NE	27,000	110,000	NC	NC	NC	NC	NC
4-Nitrophenol	130,000	NE	NE	NE	130,000	1,600,000	NC	NC	NC	NC	NC
Acetone	61,000,000	NE	NE	NE	61,000,000	670,000,000	NC	NC	SC(1,100,000)	8,856	SC(1,100,000)
Acetophenone	7,800,000	NE	NE	NE	7,800,000	120,000,000	NC	NC	NC	NC	NC
Acrolein	140	NE	NE	NE	140	600	NC	NC	NC	NC	NC
Acrylonitrile	250	68	NE	NE	68	300	NC	NC	NC	NC	NC
Aniline	95,000	NE	NE	NE	95,000	400,000	NC	NC	NC	NC	NC
Atrazine	2,400	NE	NE	NE	2,400	10,000	NC	NC	NC	NC	NC
Benzaldehyde	170,000	47,000	NE	NE	47,000	210,000	NC	NC	NC	NC	NC
Benzene	1,200	330	NE	NE	330	1,400	NC	NC	NC	NC	NC
Benzidene	0.53	1	NE	NE	0.53	3	NC	NC	NC	NC	NC
Benzoic acid	250,000,000	NE	NE	NE	250,000,000	3,300,000,000	NC	NC	NC	NC	NC
Benzyl alcohol	6,300,000	NE	NE	NE	6,300,000	82,000,000	NC	NC	NC	NC	NC
bis (2-chloroethoxy) methane	190,000	NE	NE	NE	190,000	2,500,000	NC	NC	NC	NC	NC
bis (2-chloroethyl) ether	230	NE	NE	NE	230	1,000	NC	NC	NC	NC	NC
bis (2-chloroisopropyl) ether	3,100,000	NE	NE	NE	3,100,000	47,000,000	NC	NC	NC	NC	NC
bis (2-ethylhexyl) phthalate	39,000	NE	2,870	NE	2,870	160,000	NC	NC	SC(650)	29	SC(370)
Bromobenzene	290,000	NE	NE	NE	290,000	1,800,000	NC	NC	NC	NC	NC
Bromochloromethane	150,000	NE	NE	NE	150,000	630,000	NC	NC	NC	NC	NC
Bromodichloromethane	290	300	NE	NE	290	1,300	NC	NC	NC	NC	NC
Bromoform	19,000	20,000	NE	NE	19,000	86,000	NC	NC	NC	NC	NC
Bromomethane	6,800	NE	NE	NE	6,800	30,000	NC	NC	180	NC	770
Butylbenzylphthalate	290,000	NE	NE	NE	290,000	1,200,000	NC	NC	SC(4,800)	NC	SC(2,800)
Caprolactam	31,000,000	NE	NE	NE	31,000,000	400,000,000	NC	NC	NC	NC	NC
Carbazole	6,300,000	NE	2,800,000	NE	2,800,000	82,000,000	NC	NC	NC	NC	NC
Carbon disulfide	770,000	NE	NE	NE	770,000	3,500,000	NC	NC	NC	NC	NC
Carbon tetrachloride	650	99	NE	NE	99	430	NC	NC	NC	NC	NC
Chloromethane	110,000	NE	NE	NE	110,000	460,000	NC	NC	SC(2,700)	NC	SC(3,100)
Chlorobenzene	280,000	NE	NE	NE	280,000	1,300,000	NC	NC	NC	NC	NC

Table 3-36h
Soil Screening Levels, Semivolatile and Volatile Organic Compounds
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
Chloroethane	14,000,000	NE	NE	NE	14,000,000	57,000,000	NC	NC	NC	NC	NC
Chloroform	320	NE	NE	NE	320	1,400	NC	NC	8.6	7,262	32
cis-1,2-Dichloroethene	160,000	19,000	NE	NE	19,000	86,000	NC	NC	NC	NC	NC
cis-1,3-Dichloropropene	1,800	580	NE	NE	580	2,600	NC	NC	NC	NC	NC
Cyclohexane	6,500,000	NE	NE	NE	6,500,000	27,000,000	NC	NC	NC	NC	NC
Dibenzofuran	73,000	NE	NE	NE	73,000	1,000,000	NC	NC	NC	48.9	NC
Dibromochloromethane	8,300	950	NE	NE	950	4,200	NC	NC	NC	NC	NC
Dibromomethane	24,000	NE	NE	NE	24,000	99,000	NC	NC	NC	NC	NC
Dichlorodifluoromethane	87,000	NE	NE	NE	87,000	370,000	NC	NC	NC	NC	NC
Diethyl phthalate	51,000,000	NE	NE	NE	51,000,000	660,000,000	NC	NC	NC	NC	NC
Di-isopropyl ether	2,200	NE	NE	NE	2,200	9,400	NC	NC	NC	NC	NC
Dimethyl phthalate	51,000,000	NE	NE	NE	51,000,000	660,000,000	NC	NC	NC	NC	NC
Di-n-butyl phthalate	6,300,000	NE	46.9	NE	46.9	82,000,000	NC	NC	NC	0.47	NC
Di-n-octyl phthalate	630,000	NE	NE	NE	630,000	8,200,000	NC	NC	NC	NC	NC
Ethylbenzene	5,800	NE	NE	NE	5,800	25,000	NC	NC	NC	51,543	NC
Hexachlorobenzene	210	NE	NE	NE	210	960	NC	NC	NC	NC	NC
Hexachlorobutadiene	1,200	1,200	NE	NE	1,200	5,300	NC	NC	NC	NC	NC
Hexachlorocyclopentadiene	1,800	NE	NE	NE	1,800	7,500	NC	NC	NC	NC	NC
Hexachloroethane	1,800	NE	NE	NE	1,800	8,000	NC	NC	NC	NC	NC
Isobutyl alcohol	23,000,000	23,000	NE	NE	23,000,000	110,000,000	NC	NC	NC	NC	NC
Isophorone	570,000	NE	NE	NE	570,000	2,400,000	NC	NC	SC(9,500)	NC	5,500
Isopropylbenzene	1,900,000	NE	NE	NE	1,900,000	9,900,000	NC	NC	NC	NC	NC
Methyl acetate	78,000,000	24,000,000	NE	NE	24,000,000	130,000,000	NC	NC	SC(550,000)	63,764	5,500
Methyl ethyl ketone	27,000,000	NE	NE	NE	27,000,000	190,000,000	NC	NC	NC	809,625	NC
Methyl isobutyl ketone	33,000,000	NE	NE	NE	33,000,000	140,000,000	NC	NC	NC	NC	NC
Methyl tert-butyl ether	47,000	NE	NE	NE	47,000	210,000	NC	NC	NC	NC	NC
Methylcyclohexane	NE	5,500,000	NE	NE	5,500,000	23,000,000	NC	NC	NC	NC	NC
Methylene chloride	57,000	1,900	NE	NE	1,900	24,000	NC	NC	46	8,856	250
N-Butylbenzene	3,900,000	1,200,000	NE	NE	1,200,000	6,400,000	NC	NC	NC	NC	NC
Nitrobenzene	5,100	NE	NE	NE	5,100	22,000	NC	NC	NC	NC	NC
N-Nitrosodimethylamine	2	NE	NE	NE	2	34	NC	NC	NC	NC	NC
n-Nitroso-di-n-propylamine	78	NE	NE	NE	78	330	NC	NC	NC	NC	NC
N-nitrosodiphenylamine	110,000	NE	NE	NE	110,000	470,000	NC	NC	NC	NC	NC
N-Propylbenzene	3,800,000	NE	NE	NE	3,800,000	24,000,000	NC	NC	NC	NC	NC
p-Chlorotoluene	1,600,000	440,000	NE	NE	440,000	2,300,000	NC	NC	NC	NC	NC
Pentachlorophenol	1,000	NE	2,490	NE	1,000	4,000	NC	NC	NC	7.6	NC
Phenol	19,000,000	NE	NE	NE	19,000,000	250,000,000	NC	NC	NC	NC	NC
sec-Butylbenzene	7,800,000	2,200,000	NE	NE	2,200,000	12,000,000	NC	NC	NC	NC	NC
Styrene	6,000,000	NE	NE	NE	6,000,000	35,000,000	NC	NC	NC	NC	NC
tert-Butylbenzene	7,800,000	2,200,000	NE	NE	2,200,000	12,000,000	NC	NC	NC	NC	NC

Table 3-36h
Soil Screening Levels, Semivolatile and Volatile Organic Compounds
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte	Residental Regional Screening Level	Residential DTSC-SL	Ecological Comparison Value	Background	Interim Screening Level	Commercial Screening Level	Human Health RBRG	Ecological RBRG	Human Health RBC (Recreator)[a]	Ecological RBC[b]	Human Health RBC (Worker)[c]
Tetrachloroethene	24,000	590	NE	NE	590	2,700	NC	NC	NC	NC	NC
Toluene	4,900,000	1,100,000	NE	NE	1,100,000	5,400,000	NC	NC	SC(27,000)	39,740	SC(8,600)
trans-1,2-Dichloroethene	1,600,000	130,000	NE	NE	130,000	600,000	NC	NC	NC	NC	NC
trans-1,3-Dichloropropene	1,800	580	NE	NE	580	2,600	NC	NC	NC	NC	NC
Trichloroethene	940	NE	NE	NE	940	6,000	NC	NC	NC	NC	NC
Trichlorofluoromethane	23,000,000	1,200,000	NE	NE	1,200,000	5,400,000	NC	NC	NC	NC	NC
Vinyl chloride	59	8.8	NE	NE	8.8	150	NC	NC	NC	NC	NC
Xylene, m,p-	580,000	NE	NE	NE	580,000	2,500,000	NC	NC	NC	397	NC
Xylene, o-	650,000	NE	NE	NE	650,000	2,800,000	NC	NC	NC	397	NC
Xylenes, total	580,000	NE	NE	NE	580,000	2,500,000	NC	NC	SC(16,000)	397	SC(3,800)

Notes

Screening levels in micrograms per kilogram (µg/kg)

[a] Based on lowest recreator value

[b] Based on lowest wildlife value

[c] Based on lowest worker value

NA = not applicable

NC = not calculated

NE = not established

RBRG = risk-based remedial goal

RBC = risk-based concentration

SC() = RBC is greater than the theoretical soil saturation limit for that compound or the threoretical ceiling limit of 100,000 mg/kg

TABLE 3-37

Soil Physical Parameter Results: Part A Investigation Units

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

						Atterberg Limits [a]				Particle Size Distribution						Bulk Density of Soil Speciments and Total Porosity (Calculated)									
Unit	Field ID	Sample ID	Sample Date	Sample Time	Method	Liquid	Plastic	Plasticity Index	USCS Plasticity Chart Symbol (Fine: <#40 Sieve)	Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt/Clay (%)	Grain Size Description	Moisture Content (%wt)	Volumetric Moisture Content (fraction Vb)	Total Sample Volume (cc)	Dry Bulk Density (g/cc)	Total Porosity (fraction Vb)	Volume of Solids (cc)	Volume of Voids (cc)	Void Ratio	Saturation	Specific Gravity at 20°C
AOC 1	AOC1-BCW13-200	N018682-009E	4-Feb-2016	11:15	Physical	34.3	19.8	14.5	CL	0.7	0.6	1	9.8	87.9	Silt	9.6	0.114	140.13	1.19	0.547	63.5	76.7	1.208	0.208	2.62
	AOC1-BCW13-201	N018682-010E	4-Feb-2016	11:16	Physical	18.5	NP	NP	NP	42.4	13.4	21.1	11.7	11.3	Coarse Sand	6.4	0.119	140.13	1.86	0.31	96.6	43.5	0.45	0.382	2.7
	AOC1-BCW13-202	N018682-011E	4-Feb-2016	11:17	Physical	17	NP	NP	NP	32.5	13.7	27	13.6	13.1	Medium Sand	8.1	0.156	140.13	1.93	0.284	32.6	12.9	0.397	0.551	2.7
	AOC1-BCW13-203	N018682-012E	4-Feb-2016	11:18	Physical	16	NP	NP	NP	25.8	15.8	28	14.9	15.5	Medium Sand	8.6	0.165	140.13	1.93	0.281	100.8	39.3	0.39	0.589	2.69
	AOC1-BCW25-248	N018680-001E	5-Feb-2016	10:00	Physical	36.6	23	13.6	CL	2.5	0.3	1	10.6	85.6	Silt	28.5	0.416	140.13	1.46	0.417	81.7	58.5	0.716	0.996	2.51
	AOC1-BCW25-249	N018680-002E	5-Feb-2016	10:01	Physical	23.9	NP	NP	NP	16.5	3.2	23.2	13	44.1	Fine Sand	19.2	0.337	140.13	1.76	0.345	91.8	48.3	0.526	0.976	2.68
	AOC1-BCW25-250	N018680-003E	5-Feb-2016	10:02	Physical	21.5	13.9	7.6	CL	45	15.8	1.9	8.7	28.5	Coarse Sand	11.1	0.215	140.13	1.93	0.286	100	40.1	0.401	0.75	2.71
	AOC1-BCW25-251	N018680-004E	5-Feb-2016	10:03	Physical	13.4	NP	NP	NP	26.9	15.6	26	14.9	16.7	Medium Sand	7.1	0.141	140.13	1.99	0.267	102.7	37.4	0.364	0.527	2.71
	AOC1-BCW7-272	N018677-001E	5-Feb-2016	14:00	Physical	6.3	NP	NP	NP	48.3	17.5	17.8	11.8	4.7	Coarse Sand	0.9	0.018	45.5	1.94	0.278	32.8	12.7	0.386	0.064	2.68
	AOC1-BCW7-273	N018677-001E	5-Feb-2016	14:01	Physical	11.2	NP	NP	NP	43.4	12.5	18.8	16.4	8.9	Coarse Sand	2.6	0.051	140.23	1.95	0.282	100.7	39.6	0.393	0.181	2.72
	AOC1-BCW7-274	N018677-001E	5-Feb-2016	14:02	Physical	9.4	NP	NP	NP	34.1	16.5	20.9	19.3	9.1	Coarse Sand	2.9	0.053	45.5	1.85	0.322	30.8	14.7	0.475	0.165	2.73
	AOC1-BCW7-275	N018677-001E	5-Feb-2016	14:03	Physical	13.6	NP	NP	NP	30.6	13.5	14.3	23.7	18	Medium Sand	2.9	0.053	45.5	1.85	0.312	31.3	14.2	0.453	0.171	2.69
	AOC1-BCW7-276	N018677-001E	5-Feb-2016	14:04	Physical	16.7	10.8	5.9	CL-ML	16.8	10.3	13.1	21.4	38.4	Fine Sand	3.7	0.066	140.13	1.79	0.348	91.4	48.7	0.533	0.191	2.75
	AOC1-BCW7-277	N018677-001E	5-Feb-2016	14:05	Physical	3.4	NP	NP	NP	44.1	14.5	16.9	18.2	6.3	Coarse Sand	2.8	0.057	140.13	1.99	0.26	103.8	36.4	0.351	0.219	2.69
	AOC1-BCW7-278	N018677-001E	5-Feb-2016	14:06	Physical	16.4	9.5	6.9	CL-ML	27.4	15.3	20.7	15	21.6	Medium Sand	4.6	0.088	140.13	1.9	0.294	98.9	41.2	0.417	0.299	2.69
	AOC1-BCW7-279	N018677-001E	5-Feb-2016	14:07	Physical	16.4	10.2	6.2	CL-ML	20.8	21.9	26.2	13	18.1	Medium Sand	4.6	0.085	140.13	1.85	0.313	96.3	43.8	0.455	0.272	2.7
	AOC1-T2h-335	N019002-007E	4-Mar-2016	13:45	Physical	11.4	NP	NP	NP	37	11.4	18.7	16.7	16.3	Medium Sand	2.8	0.054	140.13	1.9	0.295	98.9	41.3	0.418	0.184	2.69
	AOC1-T2h-336	N019002-008E	4-Mar-2016	15:30	Physical	16.4	10.7	5.7	CL-ML	27	19.3	23.9	13	16.8	Medium Sand	3.6	0.067	140.13	1.82	0.315	96	44.1	0.459	0.212	2.69
	AOC1-T5D-304	N018375-001D	12-Jan-2016	10:46	Physical	11.7	NP	NP	NP	38.3	15	20.8	15.2	10.6	Coarse Sand	2.6	0.051	140.32	1.93	0.28	101	39.3	0.39	0.182	2.68
	AOC1-T5D-305	N018375-002D	12-Jan-2016	10:52	Physical	12	NP	NP	NP	37.8	12.3	24.5	16.8	8.6	Coarse Sand	2.1	0.041	140.32	1.97	0.263	103.4	36.9	0.357	0.155	2.67
	AOC1-T5D-306	N018375-003D	12-Jan-2016	10:54	Physical	8.9	NP	NP	NP	85.7	3.3	3.5	4.1	3.3	Gravel	1.1	0.022	140.32	1.92	0.296	98.8	41.5	0.421	0.074	2.73
	AOC1-T5D-307	N018375-004D	12-Jan-2016	11:00	Physical	12	NP	NP	NP	73	7	7.4	5.7	6.8	Gravel	5.1	0.099	140.32	1.94	0.281	100.9	39.4	0.39	0.353	2.7
	AOC1-T5D-308	N018375-005D	12-Jan-2016	11:06	Physical	12.5	NP	NP	NP	30.4	12.8	28.2	17.8	10.9	Medium Sand	3.4	0.065	140.32	1.9	0.291	99.5	40.9	0.411	0.223	2.68
	AOC1-T5D-309	N018375-006D	12-Jan-2016	11:11	Physical	20.7	15.7	5	CL-ML	1.4	2	6.6	20.9	69.1	Silt	4.3	0.064	140.32	1.48	0.425	80.8	59.6	0.738	0.151	2.58
	AOC1-T5D-310	N018375-007D	12-Jan-2016	11:18	Physical	17.5	15.5	2	ML	3.5	2.7	7.1	19.7	66.9	Silt	5.3	0.081	140.32	1.52	0.406	83.3	57	0.684	0.199	2.57
	AOC1-T5D-311	N018375-008D	12-Jan-2016	11:22	Physical	17.3	NP	NP	NP	0.2	0.9	19.8	62.7	16.3	Fine Sand	2.6	0.043	140.32	1.64	0.394	85	55.3	0.651	0.11	2.7
	AOC1-T6D-312	N018697-001E	9-Feb-2016	12:30	Physical	8.9	NP	NP	NP	39.1	15.2	29.9	12.2	3.6	Coarse Sand	3.4	0.066	140.13	1.96	0.275	101.6	38.5	0.379	0.239	2.7
	AOC1-T6D-313	N018697-002E	9-Feb-2016	12:31	Physical	10.8	NP	NP	NP	63.7	10	11	7.6	7.8	Gravel	5.1	0.103	140.13	2	0.257	104.1	36.1	0.347	0.399	2.7
	AOC1-T6D-314	N018697-003E	9-Feb-2016	12:32	Physical	10.6	NP	NP	NP	39.7	13.1	21.4	13.6	12.2	Coarse Sand	2.9	0.054	140.13	1.91	0.294	99	41.1	0.416	0.185	2.7
	AOC1-T6D-315	N018697-004E	9-Feb-2016	12:33	Physical	15.6	NP	NP	NP	28.2	16.8	26.2	17.4	11.3	Medium Sand	3.7	0.069	140.13	1.86	0.305	97.3	42.8	0.44	0.225	2.68
	AOC1-T6D-316	N018697-005E	9-Feb-2016	12:34	Physical	16.4	NP	NP	NP	30.6	14.8	27.6	16.5	10.5	Medium Sand	2.9	0.055	140.13	1.88	0.292	99.2	40.9	0.413	0.188	2.66
	AOC1-T6D-317	N018697-006E	9-Feb-2016	12:35	Physical	17.1	NP	NP	NP	30.6	15.4	22.8	16.3	15	Medium Sand	2.2	0.044	140.13	2	0.253	34	11.5	0.339	0.173	2.67

TABLE 3-37
Soil Physical Parameter Results: Part A Investigation Units
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

						Atterberg Limits [a]				Particle Size Distribution						Bulk Density of Soil Speciments and Total Porosity (Calculated)									
Unit	Field ID	Sample ID	Sample Date	Sample Time	Method	Liquid	Plastic	Plasticity Index	USCS Plasticity Chart Symbol (Fine: <#40 Sieve)	Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt/Clay (%)	Grain Size Description	Moisture Content (%wt)	Volumetric Moisture Content (fraction Vb)	Total Sample Volume (cc)	Dry Bulk Density (g/cc)	Total Porosity (fraction Vb)	Volume of Solids (cc)	Volume of Voids (cc)	Void Ratio	Saturation	Specific Gravity at 20°C
	AOC1-T6D-318	N018697-007E	9-Feb-2016	12:36	Physical	17.1	NP	NP	NP	26.7	16.6	26.8	15.8	14.1	Medium Sand	2.9	0.055	140.13	1.93	0.279	101	39.1	0.387	0.198	2.68
	AOC1-T6D-319	N018697-008E	9-Feb-2016	12:37	Physical	16.4	8.5	7.9	CL	26.6	13.7	22.1	17.8	19.9	Medium Sand	1.9	0.039	140.13	2.07	0.23	108	32.2	0.298	0.171	2.69
	AOC9-16-4105	N018413-007D	13-Jan-2016	10:37	Physical	12.4	NP	NP	NP	43	11.8	12.9	24.5	7.7	Coarse Sand	4.4	0.083	140.42	1.89	0.279	101.3	39.2	0.387	0.297	2.62
	AOC9-16-4106	N018413-008D	13-Jan-2016	10:38	Physical	8	NP	NP	NP	45.9	11.8	13	22.4	6.9	Coarse Sand	8.6	0.177	140.42	2.05	0.228	108.4	32	0.295	0.776	2.65
	AOC9-16-4107	N018413-009D	13-Jan-2016	10:39	Physical	12.5	NP	NP	NP	30.8	10.9	13.4	34.4	10.5	Medium Sand	5.2	0.103	140.42	1.97	0.262	103.6	36.8	0.355	0.394	2.66
	AOC9-16-4108	N018413-010D	13-Jan-2016	10:40	Physical	12.9	NP	NP	NP	15.8	9.5	13.9	42.8	17.9	Fine Sand	4	0.072	140.42	1.79	0.311	96.8	43.7	0.451	0.23	2.6
AOC 9	AOC9-19-4114	N018409-001C	13-Jan-2016	10:55	Physical	13.5	NP	NP	NP	34.6	14.6	19.6	17.2	13.9	Medium Sand	4.5	0.087	140.42	1.92	0.272	102.2	38.2	0.374	0.318	2.64
	AOC9-19-4115	N018409-002C	13-Jan-2016	11:02	Physical	10.8	NP	NP	NP	36.4	11.1	13.7	30.1	8.7	Medium Sand	1.5	0.029	140.42	1.96	0.251	105.2	35.2	0.335	0.115	2.62
	AOC9-19-4116	N018409-003C	13-Jan-2016	11:09	Physical	9.5	NP	NP	NP	52	7.1	8.4	26.4	6.2	Gravel	1.7	0.034	140.42	1.97	0.254	104.8	35.6	0.34	0.134	2.64
	AOC9-19-4117	N018409-004C	13-Jan-2016	11:15	Physical	14	NP	NP	NP	47.5	7.4	10.3	27.2	7.6	Coarse Sand	2.5	0.048	140.42	1.95	0.251	105.2	35.2	0.335	0.192	2.61
	AOC11c-3-6139	N018686-001D	3-Feb-2016	9:45	Physical	23.2	9.9	13.3	CL	43.4	14.2	21.9	10.7	9.8	Coarse Sand	4.1	0.078	140.41	1.88	0.305	97.6	42.8	0.439	0.256	2.71
	AOC11c-3-6140	N018686-002D	3-Feb-2016	9:50	Physical	18.6	11.4	7.2	CL	36.5	17.9	20.7	12.5	12.4	Coarse Sand	3.7	0.069	140.41	1.89	0.285	100.4	40	0.399	0.244	2.65
	AOC11c-3-6141	N018686-003D	3-Feb-2016	10:15	Physical	16.4	11.6	4.8	CL-ML	40.5	13.7	20.7	12.2	12.8	Coarse Sand	4.2	0.079	140.41	1.87	0.304	97.8	42.6	0.436	0.261	2.69
	AOC11e-4-6159	N018648-001D	28-Jan-2016	11:30	Physical	1.9	NP	NP	NP	43.1	14.2	22.3	18	2.4	Coarse Sand	2	0.037	140.41	1.88	0.293	99.2	41.2	0.415	0.125	2.66
AOC 11	AOC11e-4-6160	N018648-002D	28-Jan-2016	11:31	Physical	5.8	NP	NP	NP	9.9	13.3	29.4	41.8	5.7	Medium Sand	3.6	0.068	140.41	1.89	0.287	100.1	40.3	0.402	0.237	2.65
	AOC11e-4-6161	N018648-003D	28-Jan-2016	11:32	Physical	5.3	NP	NP	NP	17.1	11.4	16.1	51.3	4.1	Fine Sand	1.9	0.037	140.41	1.96	0.261	103.8	36.6	0.353	0.143	2.65
	AOC11e-4-6164	N018648-004D	28-Jan-2016	11:45	Physical	29.5	11.5	18	CL	26.9	18.8	24.3	15.3	14.6	Medium Sand	4.4	0.079	140.41	1.8	0.329	94.2	46.2	0.49	0.239	2.68
	AOC14-15-8105	N018796-007J	18-Feb-2016	13:55	Physical	16.4	NP	NP	NP	51.5	10	15.8	8.8	13.8	Gravel	0.6	0.013	140.33	2.09	0.226	108.7	31.6	0.291	0.058	2.7
AOC 14	AOC14-15-8106	N018796-008J	18-Feb-2016	14:05	Physical	15.7	NP	NP	NP	56.1	8.9	13	8.7	13.2	Gravel	2	0.04	140.33	1.96	0.278	101.4	39	0.384	0.144	2.72
	AOC14-15-8108	N018796-009J	18-Feb-2016	14:25	Physical	13.6	NP	NP	NP	57.8	7	9.3	8.3	17.4	Gravel	1.3	0.025	140.33	1.94	0.284	100.4	39.9	0.397	0.089	2.71
	AOC14-15-8109	N018796-010J	18-Feb-2016	15:15	Physical	16.7	NP	NP	NP	71.6	6.5	9.2	5.3	7.4	Gravel	1	0.021	45.5	2.01	0.259	33.7	11.8	0.349	0.08	2.71
AOC 28	AOC28b-01-34003	N018095-004C	17-Dec-2015	11:00	Physical	14.8	NP	NP	NP	32.7	17.2	20.8	13.6	15.7	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SWMU1-18-1100	N018319-001E	7-Jan-2016	10:53	Physical	13	NP	NP	NP	67.8	8.2	14	5.9	4.1	Gravel	5	0.088	152.23	1.75	0.36	97.4	54.9	0.563	0.244	2.73
	SWMU1-18-1101	N018319-002E	7-Jan-2016	11:13	Physical	13.9	NP	NP	NP	61.4	9.1	13.9	7.1	8.6	Gravel	7.5	0.138	152.23	1.84	0.326	102.6	49.6	0.484	0.423	2.73
	SWMU1-18-1102	N018319-003D	7-Jan-2016	11:17	Physical	39.8	12.9	26.9	CL	52.1	11.2	16.4	10	10.4	Gravel	8.5	0.136	152.23	1.61	0.41	89.8	62.4	0.695	0.331	2.72
	SWMU1-18-1103	N018319-004D	7-Jan-2016	11:24	Physical	29.6	11	18.6	CL	45.9	15.5	18	9.4	11.2	Coarse Sand	5.4	0.087	152.23	1.61	0.413	89.4	62.8	0.703	0.211	2.73
	SWMU1-18-1104	N018319-005D	7-Jan-2016	11:27	Physical	24.3	11.3	13	CL	48.8	11.3	16.1	9.8	14.1	Coarse Sand	4.6	0.078	152.23	1.69	0.389	93	59.2	0.637	0.2	2.76
	SWMU1-18-1105	N018319-006D	7-Jan-2016	11:30	Physical	28.2	11.1	17.1	CL	42.3	13.5	21.4	11.9	11	Coarse Sand	4.9	0.08	152.23	1.64	0.401	91.2	61.1	0.67	0.199	2.74
	SWMU1-18-1106	N018319-007D	7-Jan-2016	12:19	Physical	25.8	11.2	14.6	CL	63.9	7.4	8.9	7.5	12.2	Gravel	6.2	0.1	152.23	1.63	0.405	90.6	61.6	0.68	0.248	2.73
	SWMU1-18-1107	N018319-008D	7-Jan-2016	13:43	Physical	24.9	12.4	12.5	CL	57.3	9.5	12.5	9.5	11.2	Gravel	6.6	0.11	152.23	1.67	0.389	93	59.2	0.636	0.282	2.73
	SWMU1-18-1108	N018319-009D	7-Jan-2016	14:58	Physical	25.4	12.9	12.5	CL	51.8	9.1	12.7	10.2	16.1	Gravel	8.4	0.136	152.23	1.61	0.412	89.5	62.7	0.701	0.33	2.74
	SWMU1-18-1109	N018337-001C	8-Jan-2016	9:30	Physical	33.4	13.9	19.5	CL	42.8	12.2	7	8.2	29.8	Coarse Sand	15.1	0.271	151.62	1.8	0.348	98.8	52.8	0.534	0.779	2.76
	SWMU1-18-1110	N018337-002C	8-Jan-2016	10:17	Physical	32.6	16.8	15.8	CL	58.6	6.4	4.8	7.9	22.2	Gravel	20.1	0.331	151.62	1.64	0.398	91.3	60.3	0.661	0.831	2.73
	SWMU1-18-1111	N018337-003C	8-Jan-2016	11:22	Physical	20.8	10.9	9.9	CL	51	15	19.4	6.4	8.1	Gravel	4.6	0.078	151.62	1.7	0.386	93.1	58.5	0.628	0.203	2.78
	SWMU1-18-1112	N018337-004C	8-Jan-2016	11:41	Physical	20.4	12.7	7.7	CL	47.5	14.7	15.9	10.2	11.7	Coarse Sand	12.6	0.241	151.62	1.91	0.29	107.7	43.9	0.408	0.83	2.69
	SWMU1-19-1113	N018337-005D	9-Jan-2016	8:51	Physical	10	NP	NP	NP	71.4	12.2	11.1	3.1	2.1	Gravel	2.7	0.049	151.62	1.8	0.352	98.2	53.4	0.544	0.138	2.78
SWMU 1	SWMU1-19-1114	N018337-006D	9-Jan-2016	8:52	Physical	9.9	NP	NP	NP	47.2	18.5	26.6	4.8	3	Coarse Sand	3.5	0.065	151.62	1.85	0.331	101.5	50.2	0.494	0.197	2.77

TABLE 3-37

Soil Physical Parameter Results: Part A Investigation Units

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

						Atterberg Limits [a]				Particle Size Distribution						Bulk Density of Soil Speciments and Total Porosity (Calculated)									
Unit	Field ID	Sample ID	Sample Date	Sample Time	Method	Liquid	Plastic	Plasticity Index	USCS Plasticity Chart Symbol (Fine: <#40 Sieve)	Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt/Clay (%)	Grain Size Description	Moisture Content (%wt)	Volumetric Moisture Content (fraction Vb)	Total Sample Volume (cc)	Dry Bulk Density (g/cc)	Total Porosity (fraction Vb)	Volume of Solids (cc)	Volume of Voids (cc)	Void Ratio	Saturation	Specific Gravity at 20°C
SWMU 1	SWMU1-19-1115	N018337-007C	9-Jan-2016	8:57	Physical	8.9	NP	NP	NP	59.5	11.8	17.8	5.9	5	Gravel	3.2	0.057	151.62	1.81	0.339	100.2	51.4	0.513	0.169	2.75
	SWMU1-19-1116	N018337-008C	9-Jan-2016	8:58	Physical	12.8	NP	NP	NP	65.3	8.5	17.7	4.6	3.9	Gravel	2.1	0.038	151.62	1.84	0.337	100.5	51.2	0.509	0.114	2.78
	SWMU1-19-1117	N018337-009C	9-Jan-2016	9:40	Physical	2	NP	NP	NP	42.9	11.5	31.6	7.7	6.4	Coarse Sand	2.6	0.045	151.62	1.75	0.362	96.7	54.9	0.568	0.125	2.74
	SWMU1-19-1118	N018337-010C	9-Jan-2016	9:59	Physical	22.3	10.9	11.4	CL	33.4	14.3	21.5	12.1	18.8	Medium Sand	4.4	0.075	151.62	1.7	0.378	94.3	57.3	0.608	0.199	2.73
	SWMU1-19-1119	N018337-011C	9-Jan-2016	9:58	Physical	23.7	11	12.7	CL	47.7	11.3	21.9	8.3	10.8	Coarse Sand	5.1	0.084	151.62	1.66	0.394	91.9	59.7	0.65	0.213	2.73
	SWMU1-19-1120	N018337-012C	9-Jan-2016	12:58	Physical	26.8	11.1	15.7	CL	49.2	13.5	14.4	9.8	13.1	Coarse Sand	7.4	0.125	151.62	1.7	0.378	94.4	57.3	0.607	0.332	2.73
	SWMU1-19-1121	N018337-013C	9-Jan-2016	13:32	Physical	22	10.3	11.7	CL	52.7	12.2	16.8	7.5	10.9	Gravel	5.3	0.087	151.62	1.63	0.401	90.8	60.8	0.67	0.216	2.73
	SWMU1-19-1122	N018337-014C	9-Jan-2016	14:26	Physical	25.7	11	14.7	CL	33	14.2	14.9	12.9	25	Medium Sand	5.5	0.09	151.62	1.64	0.405	90.2	61.4	0.681	0.223	2.77
	SWMU1-19-1123	N018335-001C	9-Jan-2016	15:17	Physical	21.6	9.7	11.9	CL	53.8	4.4	12.4	10	19.4	Gravel	6.1	0.101	150.42	1.67	0.387	92.3	58.1	0.63	0.262	2.72
	SWMU1-19-1124	N018335-002C	10-Jan-2016	8:45	Physical	21	12.5	8.5	CL	43.8	14.1	16.8	13.1	12.2	Coarse Sand	13.8	0.261	150.42	1.89	0.312	103.5	46.9	0.453	0.836	2.74
	SWMU1-19-1125	N018335-003C	10-Jan-2016	9:05	Physical	18.2	9.2	9	CL	22.2	12.7	16.8	16.2	32.1	Medium Sand	13.5	0.252	150.42	1.86	0.311	103.7	46.8	0.451	0.812	2.71

[a] Silt assumed as fine fraction for NP samples

°C = degrees Celsius

cc = cubic centimeter

CL = clay of low plasticity

g = grams

ML = silt of low plasticity

NA = Not analyzed

NP = Non-plastic

USCS = Unified Soil Classification Code

Vb = bulk volume

wt = weight

%wt = percent weight

TABLE 3-38
Soil Physical Parameter Results: Part B Investigation Units
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

						Atterberg Limits [a]				Particle Size Distribution						Bulk Density of Soil Speciments and Total Porosity (Calculated)									
Unit	Field ID	Sample ID	Sample Date	Sample Time	Method	Liquid	Plastic	Plasticity Index	USCS Plasticity Chart Symbol (Fine: <#40 Sieve)	Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt/Clay (%)	Grain Size Description	Moisture Content (%wt)	Volumetric Moisture Content (fraction Vb)	Total Sample Volume (cc)	Dry Bulk Density (g/cc)	Total Porosity (fraction Vb)	Volume of Solids (cc)	Volume of Voids (cc)	Void Ratio	Saturation	Specific Gravity at 20°C
SWMU 5	SWMU5-1-29000	N017935-001E	8-Dec-2015	9:15	Physical	12.9	NP	NP	NP	38.5	9.6	18.6	18.8	14.5	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SWMU5-1-29001	N017935-002H	8-Dec-2015	9:35	Physical	14.1	NP	NP	NP	43.1	12	18.6	13.4	12.9	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SWMU 11	SWMU11-4-32006	N018526-001C	25-Jan-2016	10:50	Physical	19.3	11	8.3	CL	36.5	8.2	17.5	14.1	23.6	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	SWMU11-4-32007	N018526-002C	25-Jan-2016	11:10	Physical	11.5	NP	NP	NP	65.8	8.1	10.5	9.4	6.2	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 5	AOC5-2-13004	N017934-001B	8-Dec-2015	11:25	Physical	7.9	NP	NP	NP	36	14.7	22.4	17.4	9.4	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC5-2-13005	N017934-002B	8-Dec-2015	11:40	Physical	9	NP	NP	NP	5.3	21.1	40	25.1	8.4	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC5-5-13012	N018412-001C	14-Jan-2016	11:20	Physical	13.5	NP	NP	NP	31.5	5.7	17.7	34.9	10.2	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC5-5-13013	N018412-002C	14-Jan-2016	11:40	Physical	13.5	NP	NP	NP	47.5	5.6	13.3	24.6	9	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC5-5-13014	N018412-003C	14-Jan-2016	11:55	Physical	30.8	14.5	16.3	CL	0.3	0.6	6.4	29.7	62.9	Silt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC5-5-13015	N018412-004C	14-Jan-2016	12:10	Physical	22	NP	NP	NP	0.3	0.1	1.8	92.9	4.8	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 6	AOC6-2-14003	N018470-010D	20-Jan-2016	12:40	Physical	11	NP	NP	NP	27.2	10.4	20.9	27.5	13.9	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC6-2-14004	N018470-011D	20-Jan-2016	13:00	Physical	11.8	NP	NP	NP	14	14.6	26.2	32.6	12.7	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC6-5-14010	N018471-012D	19-Jan-2016	15:10	Physical	16.7	9.8	6.9	CL-ML	44.8	6.1	11.8	20.3	17.1	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC6-5-14011	N018471-013D	19-Jan-2016	15:20	Physical	15	NP	NP	NP	33.3	4.6	10.3	37.3	14.4	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC6-5-14012	N018471-014D	19-Jan-2016	15:25	Physical	13.8	NP	NP	NP	38.7	2.2	4.9	48.6	5.5	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 7	AOC7-1-15000	N018286-003D	6-Jan-2016	13:30	Physical	18.6	12.3	6.3	CL-ML	48.9	10.8	17.8	11.8	10.8	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC7-1-15001 [b]	-	6-Jan-2016	13:45	Physical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 8	AOC8-1-16000	N018317-001D	7-Jan-2016	10:40	Physical	23.1	12.8	10.3	CL	53.8	8.3	10.1	12.9	14.9	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC8-1-16001	N018317-002H	7-Jan-2016	11:00	Physical	25.3	15.7	9.6	CL	69.9	15.9	4.9	4.5	4.9	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 13	AOC13-30-17056	N018316-001E	7-Jan-2016	15:00	Physical	8.7	NP	NP	NP	40.5	16.6	20.5	12.3	10.1	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC13-30-17057	N018316-002I	7-Jan-2016	15:15	Physical	16.7	10.2	6.5	CL-ML	21.8	12.7	18.7	25.6	21.2	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 15	AOC15-3-18004	N018508-004C	22-Jan-2016	11:00	Physical	4	NP	NP	NP	15.2	3.5	18.2	53.2	9.8	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC15-3-18005	N018508-005C	22-Jan-2016	11:15	Physical	2.1	NP	NP	NP	10.4	4.5	18.2	59.9	7	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC15-3-18006	N018508-006C	22-Jan-2016	11:20	Physical	1.1	NP	NP	NP	78.4	1	4.7	14.2	1.8	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 16	AOC16-3-19004	N018374-001B	11-Jan-2016	13:45	Physical	7.2	NP	NP	NP	53.1	5.3	23.3	11.8	6.5	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC16-3-19005	N018374-002B	11-Jan-2016	14:00	Physical	14.7	11.4	3.3	ML	50.4	6	12.6	13	18	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 17	AOC17-3-20008	N017904-008D	6-Dec-2015	12:45	Physical	18.9	10.2	8.7	CL	45.8	5.7	11.5	17.1	19.9	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC17-3-20009	N017904-009D	6-Dec-2015	12:45	Physical	17.9	10.8	7.1	CL	38.5	6.6	13.3	18.2	23.6	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC17-3-20010	N017904-010G	6-Dec-2015	13:00	Physical	20.5	10.1	10.4	CL	34.8	8.3	17	20.8	19.1	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC17-3-20011	N017904-011G	6-Dec-2015	13:15	Physical	11.8	NP	NP	NP	34.7	4.4	17.8	38.3	4.7	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC17-5-20021	N017904-021G	6-Dec-2015	15:05	Physical	4.1	NP	NP	NP	53.5	3.5	15.9	23.3	3.8	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 19	AOC19-7-22008	N018525-007C	23-Jan-2016	14:20	Physical	27.6	13.6	14	CL	10.7	3.9	13.7	25.3	46.5	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC19-7-22009	N018525-008C	23-Jan-2016	14:25	Physical	25.2	16.9	8.3	CL	12.6	2.8	8.9	16.3	59.3	Silt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC19-7-22010	N018525-009C	23-Jan-2016	14:40	Physical	22	12.5	9.5	CL	21.3	3.9	12.4	22.9	39.6	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 3-38

Soil Physical Parameter Results: Part B Investigation Units

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

						Atterberg Limits [a]				Particle Size Distribution						Bulk Density of Soil Speciments and Total Porosity (Calculated)									
Unit	Field ID	Sample ID	Sample Date	Sample Time	Method	Liquid	Plastic	Plasticity Index	USCS Plasticity Chart Symbol (Fine: <#40 Sieve)	Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt/Clay (%)	Grain Size Description	Moisture Content (%wt)	Volumetric Moisture Content (fraction Vb)	Total Sample Volume (cc)	Dry Bulk Density (g/cc)	Total Porosity (fraction Vb)	Volume of Solids (cc)	Volume of Voids (cc)	Void Ratio	Saturation	Specific Gravity at 20°C
AOC 20	AOC20-1-23000	N018550-001E	26-Jan-2016	11:15	Physical	11.8	NP	NP	NP	37.2	11.1	17.7	27.2	6.7	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC20-1-23001	N018550-002I	26-Jan-2016	11:30	Physical	11.6	NP	NP	NP	21.6	5.3	17.3	47	8.8	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC20-1-23002	N018550-003I	26-Jan-2016	11:35	Physical	13.1	NP	NP	NP	41.8	4.5	15.5	31.3	7	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 21	AOC21-1-24000	N018372-001F	12-Jan-2016	8:55	Physical	12.6	NP	NP	NP	32.8	10.4	20.5	21.4	14.9	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC21-1-24001	N018372-002J	12-Jan-2016	9:20	Physical	30	18	12	CL	36.9	6.4	9.2	9	38.5	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC21-1-24002	N018372-003J	12-Jan-2016	9:40	Physical	29.3	17.3	12	CL	50.4	5.8	7.8	5.7	30.5	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 22	AOC22-1-25000	N018285-001D	6-Jan-2016	10:05	Physical	11.4	NP	NP	NP	35.3	13.3	20	20.5	10.9	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC22-1-25001	N018285-002D	6-Jan-2016	10:08	Physical	11.3	NP	NP	NP	38.5	11.5	18.1	21.4	10.5	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC22-1-25002	N018285-003H	6-Jan-2016	10:30	Physical	15.1	NP	NP	NP	49.1	9	16.3	15.8	9.9	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 23	AOC23-2-26003 [b]	-	7-Jan-2016	13:25	Physical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 24	AOC24-2-27002	N018342-003E	11-Jan-2016	9:50	Physical	16.6	10.3	6.3	CL-ML	40.4	7.9	14.7	16.8	20.2	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC24-2-27003	N018342-004E	11-Jan-2016	9:55	Physical	16.1	9.9	6.2	CL-ML	49.2	5.6	11.6	15.7	17.9	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC24-2-27004	N018342-005I	11-Jan-2016	10:15	Physical	17.2	12.9	4.3	CL-ML	48.2	3.4	8.7	13.8	25.9	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC24-2-27005	N018342-006I	11-Jan-2016	10:40	Physical	9	NP	NP	NP	53.8	12.1	19.9	8.8	5.4	Gravel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AOC 26	AOC26-1-28000	N018068-001D	15-Dec-2015	13:30	Physical	11.7	NP	NP	NP	30.7	10.7	17.6	33.6	7.4	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC26-1-28001	N018068-002H	15-Dec-2015	13:45	Physical	10.9	NP	NP	NP	10.4	14.8	23.4	44.5	6.9	Fine Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC26-1-28003	N018068-004H	15-Dec-2015	14:20	Physical	11.2	NP	NP	NP	37.2	10.4	15	27.5	9.9	Medium Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC26-1-28004	N018336-001H	10-Jan-2016	13:05	Physical	33.4	12.2	21.2	CL	46.3	11.1	15.1	10.1	17.3	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC26-1-28005	N018336-002H	10-Jan-2016	15:10	Physical	28.8	12	16.8	CL	47.2	12.4	13.4	9.3	17.7	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC26-1-28006	N018336-003H	11-Jan-2016	10:15	Physical	21.9	11.6	10.3	CL	44.7	10.6	11.1	12.2	21.4	Coarse Sand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	AOC26-1-28023 [c]	-	10-Jan-2016	13:50	Physical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] Silt assumed as fine fraction for NP samples

[b] Insufficient sample to perform test

[c] Sample was placed on hold and not released for analysis

°C = degrees Celsius
cc = cubic centimeter
CL = clay of low plasticity
g = grams
ML = silt of low plasticity
NA = Not analyzed
NP = Non-plastic
USCS = Unified Soil Classification Code
Vb = bulk volume
wt = weight
%wt = percent weight

TABLE 3-39a
Sample Results: Metals in Soil
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
SWMU5																					
SWMU5-1	12/08/15	0 - 1	N	ND (2) *	2.3	84	ND (1) *	ND (1)	0.41	13	4	8.2	4.2	ND (0.1) *	ND (1)	8.8	ND (1)	ND (1)	ND (2) *	18	22
SWMU5-2	12/07/15	0 - 0.5	N	ND (2.1) *	3.3	100	ND (1) *	ND (1)	ND (0.21)	11	3.8	7.6	4.7	ND (0.1) *	ND (1)	7.6	ND (1)	ND (1)	ND (2.1) *	20	23
SWMU6																					
SWMU6-1	12/07/15	0 - 1	N	ND (2.1) *	2.9	110	ND (1) *	ND (1)	0.23	11	4.4	8	4.4	ND (0.1) *	ND (1)	9.9	ND (1)	ND (1)	ND (2.1) *	19	22
AOC7																					
AOC7-5	01/06/16	0 - 0.5	N	ND (2.1) *	3.6	97	ND (1) *	ND (1)	0.56	25	7.8	10	3	ND (0.11) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	38	43
AOC8																					
AOC8-1	01/07/16	0 - 0.5	N	ND (2.2) J*	4.2	120	ND (1.1) *	ND (1.1) *	---	45 J	10	18	5.5	0.31	ND (1.1)	31	ND (1.1) J	ND (1.1)	ND (2.2) *	43	53 J
AOC13																					
AOC13-13	01/09/16	0 - 0.5	N	ND (2.1) J*	4.1	73	ND (1) *	ND (1)	0.49	33	6.8	11	6.1	0.13	ND (1)	14	ND (1) J	ND (1)	ND (2.1) J*	30	53
AOC13-18	01/06/16	0 - 0.5	N	ND (2) *	3.4	85	ND (1) *	ND (1)	ND (0.21)	26	8.2	10	5.6	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	40	52
	01/06/16	0.5 - 1	FD	ND (2) *	3.2	90	ND (1) *	ND (1)	ND (0.2)	24	8.6	12	5.6	ND (0.1) *	ND (1)	17	ND (1)	ND (1)	ND (2) *	39	52
	01/06/16	2 - 3	N	ND (2.1) *	3.3	85	ND (1) *	ND (1)	ND (0.21)	24	9.7	12	3.4	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2.1) *	43	47
AOC13-19	01/08/16	0 - 0.5	N	ND (2.1) *	4.2	78	ND (1.1) *	ND (1.1) *	ND (0.21)	14	6.4	7.6	3	0.17	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	28	34
	01/08/16	2 - 3	N	ND (2.1) *	4	68	ND (1) *	ND (1)	ND (0.2)	14	6.8	8.4	4	0.12	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	23	25
AOC13-20	01/08/16	0 - 0.5	N	ND (2.1) *	4	110	ND (1.1) *	ND (1.1) *	ND (0.21)	18	7.1	10	6	0.38	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.1) *	26	36
	01/08/16	2 - 3	N	ND (2.2) *	6.3	120	ND (1.1) *	ND (1.1) *	ND (0.21)	21	8.1	13	6.9	0.28	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.2) *	33	49
AOC13-21	01/08/16	0 - 0.5	N	ND (2) *	4.4	210	ND (1) *	ND (1)	ND (0.2)	12	4.6	8.9	4.2	0.11	ND (1)	11 J	ND (1)	ND (1)	ND (2) *	18	29
	01/08/16	0 - 0.5	FD	ND (2) *	4.5	200	ND (1) *	ND (1)	ND (0.2)	10	4.5	8.6	4.3	0.13	ND (1)	8.9 J	ND (1)	ND (1)	ND (2) *	18	28
	01/08/16	2 - 3	N	ND (2.1) *	4.6	110	ND (1) *	ND (1)	ND (0.2)	15	6.6	11	5.6	0.18	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	27	41
AOC13-26	01/09/16	0 - 0.5	N	ND (2.1) *	4.3	120	ND (1.1) *	ND (1.1) *	ND (0.21)	15	6.5	18	7.9	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.1) *	24	39
AOC13-30	01/07/16	0 - 0.5	N	ND (2.2) *	3.8	79	ND (1.1) *	ND (1.1) *	0.82	37	7.4	13	7.2	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.2) *	34	53
	01/07/16	2 - 3	N	ND (2.1) *	4	200	ND (1.1) *	ND (1.1) *	0.28	16	6.8	11	4.1	ND (0.11) *	ND (1.1)	11	ND (1.1)	ND (1.1)	ND (2.1) *	32	39
AOC13-31	01/07/16	0 - 0.5	N	ND (2.2) *	4.1	68	ND (1.1) *	ND (1.1) *	ND (0.22)	16	4.8	7.7	5.6 J	ND (0.11) *	ND (1.1)	9.1	ND (1.1)	ND (1.1)	ND (2.2) *	22	33
	01/07/16	0 - 0.5	FD	ND (2.2) *	3.8	82	ND (1.1) *	ND (1.1) *	0.28	16	5.1	7.7	9.7 J	ND (0.11) *	ND (1.1)	10	ND (1.1)	ND (1.1)	ND (2.2) *	26	35
	01/07/16	2 - 3	N	ND (2.1) *	3.6	110	ND (1.1) *	ND (1.1) *	0.49	14	5.8	9	5.7	ND (0.11) *	ND (1.1)	9.7	ND (1.1)	ND (1.1)	ND (2.1) *	24	34
AOC13-32	12/04/15	0 - 0.5	N	ND (2) *	4	79	ND (1) *	ND (1)	ND (0.2)	12	4.9	7.6	3	ND (0.1) *	ND (1)	10	ND (1)	ND (1)	ND (2) *	23	29
AOC13-33	02/15/17	0 - 0.5	N	ND (2.1) *	4	150 J	ND (1) *	1.4	3.7 J	160 J	5.3 J	170 J	200 J	0.34	1.2	10 J	ND (1) J	ND (1) J	ND (2.1) J*	18	230 J
	02/18/17 [Y]	0	N	ND (2.1) *	1.9	280	ND (1.1) *	ND (1.1) *	ND (0.21)	47	2.6	44	110	ND (0.11) *	ND (1.1)	4.2	ND (1.1) J	ND (1.1)	ND (2.1) J*	10	73
	02/15/17	0 - 0.5	FD	2.7	6.2	210 J	ND (1) *	1.9	6.4 J	230 J	7 J	110 J	580 J	0.7	2.9	13 J	ND (1) J	ND (1) J	ND (2) J*	20	480 J
	02/15/17	2 - 3	N	ND (2.1) *	2.9	84	ND (1) *	ND (1) J	2.1	61	4.4 J	15	22 J	ND (0.1) *	ND (1)	9.5	ND (1) J	ND (1) J	ND (2.1) J*	19	55 J
AOC13-9	01/09/16	0 - 0.5	N	ND (2.1) *	5.4	150	ND (1) *	ND (1)	0.66	66	5.3	14	8.9	ND (0.11) *	ND (1)	10	ND (1)	ND (1)	ND (2.1) *	25	63
AOC13-Debris	04/26/17 [Y]	0	N	23	38	640	ND (1.1) *	ND (1.1) *	7.7 J	3,800	3.4	140	62	3.7	16	11	ND (1.1)	ND (1.1)	ND (2.1) *	61	1,800
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (2) *	2.9	110	ND (1) *	ND (1)	ND (0.4)	13	5	13	7.5	ND (0.1) *	ND (1)	9.7	ND (1)	ND (1)	ND (2) *	25	28
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (2) *	2.8	130	ND (1) *	ND (1)	0.73	22	6.5	12	14	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	36	38

TABLE 3-39a
Sample Results: Metals in Soil
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (2) *	2.7	130	ND (1) *	ND (1)	ND (0.4)	23	5.7	11	6.4	ND (0.099) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	31	37
	07/26/11	2 - 3	N	ND (2) *	2.3	110	ND (1) *	ND (1)	ND (0.41)	20	7.7	8.9	5.5	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2) *	30	31
BH-65	03/24/11	0 - 0.5	N	ND (0.26)	2	94	ND (0.26)	ND (0.26)	0.52	12	3.4	5.2	6.7	ND (0.1) *	0.86	9.7	ND (0.26)	ND (0.26)	ND (0.26)	13	21
BH-66	03/23/11	0 - 0.5	N	ND (0.27)	1.4	70	ND (0.27)	ND (0.27)	ND (0.43)	12	4	5	8.9	ND (0.11) *	ND (0.27)	11	ND (0.27)	ND (0.27)	ND (0.27)	14	16
	03/23/11	2 - 3	N	ND (0.27)	1.3	62	ND (0.27)	ND (0.27)	ND (0.42)	9.1	3.3	5	3.2	ND (0.11) *	ND (0.27)	9.3	ND (0.27)	ND (0.27)	ND (0.27)	11	15
PA-02	11/09/15	0 - 1	N	ND (2) *	3	88	ND (1) *	ND (1)	2.2	31	4.9	9.4	20	0.15	ND (1)	10	ND (1)	ND (1)	ND (2) *	20	42
PA-22	01/27/16	0 - 1	N	ND (2.1) *	5.3	97	ND (1) *	ND (1)	ND (0.21)	49	5.4	25	32	ND (0.1) *	1.2	12	ND (1)	ND (1)	ND (2.1) *	28	140
PA-OS3	12/10/14	0.5	N	ND (2.1) *	3.4	130	ND (1) *	ND (1)	0.7	31	6.9	11	8.5	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2.1) *	36	53
	12/10/14	3	N	ND (2.1) *	3.9	200	ND (1) *	ND (1)	0.35	53	12	13	4.4	ND (0.1) *	ND (1)	37	1.1	ND (1)	ND (2.1) *	54	41
PGE-LT-OS9	03/08/07	0.5	N	ND (6.2) *	2.5	180	ND (0.52)	ND (0.52)	ND (0.21)	26	6.9	18	5	ND (0.1) *	ND (4.2) *	17	ND (0.52)	ND (1)	ND (1) *	36	38
	03/08/07	3	N	ND (6.2) *	2.8	190	ND (0.51)	0.56	ND (0.21)	34	8.7	35	6.3	ND (0.1) *	ND (4.1) *	25	ND (0.51)	ND (1)	ND (1) *	46	46
PGE-UTOS1	03/08/07	0.5	N	ND (6.2) *	3.9	190	ND (0.52)	ND (0.52)	ND (0.21)	18	6.1	54	9.4	ND (0.1) *	ND (4.2) *	13	ND (0.52)	ND (1)	ND (1) *	33	60
SD-24	03/09/16	0 - 1	N	ND (2.1) *	4.2	140	ND (1) *	1.2	ND (0.21)	16	4.9	58	22	ND (0.1) *	2.5	9.6	ND (1)	ND (1)	ND (2.1) *	20	1,000
	03/09/16	2 - 3	N	ND (2.1) *	3	88	ND (1.1) *	ND (1.1) *	ND (0.21)	11	3.9	6.1	5.3	ND (0.11) *	ND (1.1)	7.3	ND (1.1)	ND (1.1)	ND (2.1) *	19	21
SD-31	02/15/17	0 - 0.5	N	ND (2.1) *	3.8	110	ND (1) *	ND (1)	1.4 J	170 J	4.1	20 J	27	ND (0.1) *	ND (1)	7.9 J	ND (1) J	ND (1) J	ND (2.1) J*	17	180 J
	02/15/17	0 - 0.5	FD	ND (2.1) *	4.7	110	ND (1) *	2	1.1 J	45 J	4.6	71 J	31	ND (0.1) *	ND (1)	11 J	ND (1) J	ND (1) J	ND (2.1) J*	14	130 J
	02/15/17	1 - 2	N	ND (2.1) *	3.4	100	ND (1) *	1.4	1.6	37	5.2	37	30	ND (0.1) *	ND (1)	12	ND (1) J	ND (1) J	ND (2.1) J*	17	500
	02/15/17	2 - 3	N	ND (2.1) *	3.1	89	ND (1) *	ND (1)	0.28	15	3.9	6.1	3	ND (0.1) *	ND (1)	5.5	ND (1) J	ND (1) J	ND (2.1) J*	16	39
SD-07	12/17/15	0 - 1	N	ND (2) *	3	39	ND (1) *	ND (1)	ND (0.2)	5.1	2.4	3.7	3.1	ND (0.1) *	ND (1)	4.1	ND (1)	ND (1)	ND (2) *	11	400
	12/17/15	2 - 3	N	ND (2) *	4.3	110	ND (1) *	ND (1)	0.24	7.1	2.9	6	190	ND (0.1) *	ND (1)	5.3	ND (1)	ND (1)	ND (2) *	16	47
SD-OS30	07/18/17	0 - 0.5	N	ND (2) *	4.2	110	ND (1) *	ND (1)	ND (0.2)	27	6.2	20	9.2	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	2.3	25	55
SD-OS38	12/13/16	0 - 0.5	N	ND (2) J*	3.8	140	ND (1) *	ND (1) J	ND (0.2)	19	4.8	10	5.9 J	ND (0.1) *	1.4	10	ND (1) J	ND (1)	ND (2) J*	23	32
SD-OS39	11/29/16	0 - 0.5	N	ND (2) *	3.2	110	ND (1) *	ND (1)	0.46	26	6.6	13	10	ND (0.1) *	ND (1)	14	ND (1) J	ND (1) J	ND (2) J*	23	44
	11/29/16	0 - 0.5	FD	ND (2) *	3	110	ND (1) *	ND (1)	0.52	30	6.4	12	10	ND (0.099) *	ND (1)	14	ND (1) J	ND (1)	ND (2) J*	23	49
	11/29/16	2.5 - 3	N	ND (2.1) *	3.3	120	ND (1) *	ND (1)	ND (0.21)	9.1	3.5	5.5	3.2	ND (0.1) *	ND (1)	6	ND (1) J	ND (1)	ND (2.1) J*	15	17
	11/29/16	2.5 - 3	FD	ND (2.1) *	3.1	100	ND (1) *	ND (1)	ND (0.21)	11	3.2	7.1	3.5	ND (0.1) *	ND (1)	6	ND (1) J	ND (1)	ND (2.1) J*	14	18
SD-OS40	12/06/16	0 - 0.5	N	ND (2) *	3.5	130	ND (1) *	ND (1)	ND (0.2)	11	4.3	7.3	3.2	ND (0.1) *	ND (1)	7.2	ND (1) J	ND (1)	ND (2) J*	17	24
SD-OS43	07/18/17	0 - 0.5	N	ND (2) *	3.6	100	ND (1) *	ND (1)	0.46	22	5.7	9.3	6.5	ND (0.099) *	1.4	9.7	ND (1)	ND (1)	2.4	22	35
AOC16																					
AOC16-1	01/11/16	0 - 0.5	N	ND (2.1) *	4.5	57	ND (1) *	ND (1)	---	12	5.3	13	4.2	0.12	ND (1)	12	ND (1)	ND (1)	ND (2.1) *	19	21
AOC16-2	01/11/16	0 - 0.5	N	ND (2.1) *	3	94	ND (1) *	ND (1)	---	22	6.8	31	8.1	0.1	2.1	16	ND (1)	ND (1)	ND (2.1) *	22	62
	01/11/16	2 - 3	N	ND (2.2) *	3.3	240	ND (1.1) *	ND (1.1) *	---	29	9.3	21	3.3	0.16	ND (1.1)	25	ND (1.1)	ND (1.1)	ND (2.2) *	37	31
AOC16-3	01/11/16	0 - 0.5	N	ND (2.1) *	3.4	85 J	ND (1) *	ND (1)	---	15	5.5	98	6.5	0.12	3.6	13	ND (1)	ND (1)	ND (2.1) *	17	38
AOC16-4	01/11/16	0 - 1	N	ND (2.1) *	2.4	65	ND (1) *	ND (1)	---	15	6.1	12	6.9	0.14	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	21	27
AOC16-grit	01/05/17	0 - 0.5	N	ND (2) *	12	130	ND (1) *	2.4	---	38	21	1,500	19	ND (0.1) *	79	13	ND (1) J	ND (1)	ND (2) J*	28	190
AOC2A	02/20/03	0.4	N	---	---	---	---	---	ND (4.2) *	26.1	---	10.2	---	---	---	12.4	---	---	---	---	367
AOC2B	02/20/03	0.4	N	---	---	---	---	---	ND (3.8) *	17.3	---	11.2	---	---	---	17	---	---	---	---	23.9

TABLE 3-39a
Sample Results: Metals in Soil
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				31	0.68	15,000	160	71	0.3	120,000	23	3,100	400	11	390	1,500	390	390	0.78	390	23,000
Residential DTSC-SL [3]:				NE	0.11	NE	15	5.2	NE	36,000	NE	NE	80	1	NE	490	NE	390	NE	390	NE
Ecological Comparison Values [4]:				0.285	11.4	330	23.3	0.0151	139.6	36.3	13	20.6	0.0166	0.0125	2.25	0.607	0.177	5.15	2.32	13.9	0.164
Background [5]:				NE	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	NE	1.37	27.3	1.47	NE	NE	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC18																					
AOC18-1	01/12/16	0 - 0.5	N	ND (2.1) *	4.2	120	ND (1) *	ND (1)	0.25	19 J	5.7	12	8.7 J	0.14	1.2	14 J	ND (1)	ND (1)	ND (2.1) *	24	36
	01/12/16	0 - 0.5	FD	ND (2.1) *	3.6	110	ND (1) *	ND (1)	0.23	14 J	4.6	8.9	6.2 J	ND (0.1) *	ND (1)	10 J	ND (1)	ND (1)	ND (2.1) *	20	32
AOC18-10	12/16/15	0 - 0.5	N	ND (2) *	3.4	150	ND (1) *	ND (1)	0.29	17	6.3	10	5.8	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	28	36
AOC18-11	01/11/16	0 - 0.5	N	ND (2.1) *	4.3	130	ND (1.1) *	ND (1.1) *	0.64	17	6.2	11	17	0.13	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	27	38
	01/11/16	2 - 3	N	ND (2.1) *	5.2	160	ND (1.1) *	ND (1.1) *	ND (0.21)	25	8.6	12	3.5	0.15	ND (1.1)	22	ND (1.1)	ND (1.1)	ND (2.1) *	38	32
AOC18-12	12/04/15	0 - 0.5	N	ND (2.1) *	3.4	95	ND (1) *	ND (1)	0.36	16	5.2	9.1	5.2	ND (0.1) *	ND (1)	9.8	ND (1)	ND (1)	ND (2.1) *	21	24
AOC18-2	01/12/16	0 - 0.5	N	ND (2.1) *	4.1	130	ND (1.1) *	ND (1.1) *	0.23	21	6.9	9.6	5.1	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	28	36
AOC18-5	12/04/15	0 - 0.5	N	ND (2.1) J*	3.1 J	82 J	ND (1) J*	ND (1) J	0.31	16	3.9 J	8.9	5.3 J	ND (0.1) *	ND (1) J	10 J	ND (1) J	ND (1) J	ND (2.1) J*	17	24
AOC18-6	12/04/15	0 - 0.5	N	ND (2.2) *	3.5	140	ND (1.1) *	ND (1.1) *	0.28	38	5.8	12	6.2	ND (0.11) *	ND (1.1)	14	ND (1.1)	ND (1.1)	ND (2.2) *	26	32
AOC18-9	12/07/15	0 - 0.5	N	ND (2.1) *	2.1	77	ND (1) *	ND (1)	ND (0.21)	10	4	7.4	3.5	0.24	ND (1)	9	ND (1)	ND (1)	ND (2.1) *	17	22
	12/07/15	0 - 0.5	FD	ND (2) *	2.5	77	ND (1) *	ND (1)	ND (0.2)	11	4	7.8	3.9	0.14	ND (1)	9.6	ND (1)	ND (1)	ND (2) *	18	23
AOC20																					
AOC20-OS11	12/21/16	0 - 0.5	N	ND (2) J*	4.5	130	ND (1) *	ND (1)	ND (0.2)	20	6	10	6.1	ND (0.1) *	ND (1)	11	ND (1) J	ND (1)	ND (2) *	28	39
AOC21																					
AOC21-1	01/12/16	0 - 0.5	N	ND (2.1) *	3.5	140	ND (1.1) *	ND (1.1) *	0.35	23	6.9	12	8	ND (0.11) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	26	45
AOC21-OS1	09/23/14	0 - 0.5	N	ND (2) J*	3.2	130	ND (1) *	ND (1) J	0.28	19 J	4.5 J	8.7	12 J	ND (0.099) *	ND (1)	11	ND (1) J	ND (1) J	ND (2) J*	24	36 J
AOC21-OS2	09/23/14	0 - 0.5	N	ND (2) *	3.7	130	ND (1) *	ND (1)	1.2	32	4.9	98	41	0.14	2.2	15	ND (1)	ND (1)	ND (2) *	24	90
	09/23/14	1 - 1.5	N	ND (2) *	2.8	95	ND (1) *	ND (1)	0.51	19	4.2	12	11	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	22	52
AOC21-OS3	09/23/14	0 - 0.5	N	ND (2) *	3.5	140	ND (1) *	ND (1)	ND (0.2)	20	5.3	18	5.4	ND (0.1) *	ND (1)	16	ND (1)	ND (1)	ND (2) *	29	31
AOC21-OS4	09/23/14	0 - 0.5	N	ND (2) *	3	90	ND (1) *	ND (1)	ND (0.2)	23	4.4	11	5.8	ND (0.1) *	ND (1)	12	ND (1)	ND (1)	ND (2) *	22	30
AOC22																					
AOC22-1	01/06/16	0 - 0.5	N	ND (2.1) *	2.8	87	ND (1) *	ND (1)	ND (0.21) J	21 J	5.3	7.2	5	ND (0.1) *	ND (1)	15 J	ND (1)	ND (1)	ND (2.1) *	22	33
	01/06/16	0 - 0.5	FD	ND (2.1) *	3.1	84	ND (1.1) *	ND (1.1) *	3.3 J	17 J	6.2	8.9	6.3	ND (0.1) *	ND (1.1)	12 J	ND (1.1)	ND (1.1)	ND (2.1) *	26	34
AOC22-2	01/06/16	0 - 0.5	N	ND (2.1) J*	3.7	87 J	ND (1) *	ND (1)	0.5	20	5	12 J	12	ND (0.1) *	ND (1)	8.8	ND (1) J	ND (1)	ND (2.1) *	23	47 J
	01/06/16	2 - 3	N	ND (2.2) *	3.2	69	ND (1.1) *	ND (1.1) *	10	42	6.2	18	75	0.24	ND (1.1)	11	ND (1.1)	1.2	ND (2.2) *	31	58
AOC22-3	01/17/17	0 - 0.5	N	ND (2) *	2.9	49	ND (1) *	ND (1)	1.3	17	2.9	17	4.7	ND (0.1) *	ND (1)	5.7	ND (1) J	ND (1)	ND (2) *	15	25
AOC24																					
AOC24-1	01/10/16	0 - 0.5	N	ND (2) *	2.3	93	ND (1) *	ND (1)	1	18	6.3	7.1	3.1	ND (0.1) *	ND (1)	8.6	ND (1)	ND (1)	ND (2) *	23	33
AOC24-2	01/11/16	0 - 0.5	N	ND (2.1) *	5	140	ND (1.1) *	ND (1.1) *	0.82	28	6.7	10	7	ND (0.1) *	ND (1.1)	13	ND (1.1)	ND (1.1)	ND (2.1) *	27	32
	01/11/16	0 - 0.5	FD	ND (2.2) *	4.7	150	ND (1.1) *	ND (1.1) *	0.8	28	5.6	9.4	7.2	ND (0.11) *	ND (1.1)	12	ND (1.1)	ND (1.1)	ND (2.2) *	25	32
AOC24-OS1	12/14/11	0 - 0.5	N	ND (2.1) *	3.8	190	ND (1) *	ND (1)	1.2	30	5.1	9.3	8.4	ND (0.1) *	ND (1)	9.7	ND (1)	ND (1)	ND (2.1) J*	29	33
AOC24-OS2	12/14/11	0 - 0.5	N	ND (2.1) *	2.3	91	ND (1) *	ND (1)	ND (0.41)	20	7.1	8	17	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2.1) *	30	32
Unit4.3-4.5																					
Units4.3-1	12/07/15	0 - 1	N	ND (2.1) *	3.4	120	ND (1.1) *	ND (1.1) *	0.26	19	5.4	14	5.9	ND (0.1) *	ND (1.1)	15	ND (1.1)	ND (1.1)	ND (2.1) *	24	31
AOC4																					
AOC4-23	12/06/15	0 - 1	N	ND (2) *	3.5	130	ND (1) *	ND (1)	---	22	6.8	17	5.1	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2) *	27	42

TABLE 3-39a
Sample Results: Metals in Soil
Offsite Migration Assessment
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PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				0.285	11	410	0.672	1.1	0.83	39.8	12.7	16.8	8.39	0.0125	1.37	27.3	1.47	5.15	0.78	52.2	58
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Hexavalent	Chromium, total	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
AOC4-24	12/06/15	0 - 1	N	ND (2) *	2.6	130	ND (1) *	ND (1)	---	40	8.2	17	7.4	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	34	42
	12/06/15	2 - 3	N	ND (2) *	5	450	ND (1) *	ND (1)	---	22	5.1	9.1	3.8	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	29	27
AOC4-25	11/20/15	0 - 1	N	ND (2) *	4.9	120	ND (1) *	ND (1)	---	13	4.4	15	6.7	ND (0.1) *	ND (1)	8.6	ND (1)	ND (1)	ND (2) *	17	30
AOC4-26	11/20/15	0 - 1	N	ND (2) *	5.4	160	ND (1) *	ND (1)	---	34	9.4	21	6.5	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2) *	38	44
	11/20/15	2 - 3	N	ND (2) *	5.8	360	ND (1) *	ND (1)	---	56	17	54	5.3	ND (0.1) *	ND (1)	40	ND (1)	ND (1)	ND (2) *	59	50
AOC4-27	11/20/15	0 - 1	N	ND (2) *	5.3	220	ND (1) *	ND (1)	---	69	12	31	22	ND (0.1) *	ND (1)	33	ND (1)	ND (1)	ND (2) *	47	61
	11/20/15	2 - 3	N	ND (2) *	5.9	290	ND (1) *	ND (1)	---	72	19	38	6.4	ND (0.1) *	ND (1)	43	1.1	ND (1)	ND (2) *	63	50
AOC4-28	11/20/15	0 - 1	N	ND (2) *	4.3	190	ND (1) *	ND (1)	---	34	5.2	17	26	ND (0.1) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	20	65
AOC4-29	12/02/15	0 - 1	N	ND (2) J*	3.6	110	ND (1) *	ND (1)	ND (0.2)	31	7.6	18	6.5	ND (0.1) *	ND (1)	22	ND (1) J	ND (1) J	ND (2) *	31	170
AOC4-30	12/02/15	0 - 1	N	ND (2) *	4.5	95	ND (1) *	ND (1)	ND (0.2)	27	7.9	16	4.2	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2) *	32	40
AOC4-31	12/02/15	0 - 1	N	ND (2) *	3.3	140	ND (1) *	ND (1)	ND (0.2)	28	7.9	14	4.3	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	31	39
AOC4-32	12/02/15	0 - 1	N	ND (2) *	3.6	220	ND (1) *	ND (1)	0.37	45	7.7	25	9.8	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2) *	34	440
AOC4-36	01/05/17	0 - 0.5	N	ND (2.1) *	2.8	160	ND (1) *	ND (1)	0.23	33	9.2	14	3.1	ND (0.1) *	ND (1)	22	ND (1) J	ND (1)	ND (2.1) J*	33	36
	01/05/17	0.9 - 1	N	ND (2.2) *	5.8	310	ND (1.1) *	ND (1.1) *	ND (0.22)	16	5	7.6	2.2	ND (0.11) *	ND (1.1)	13	ND (1.1) J	ND (1.1)	ND (2.2) J*	24	27
AOC4-37	02/04/17	0 - 0.5	N	ND (2.1) *	10	1,100	ND (1) *	ND (1)	ND (0.21)	22	7.1	8.3	3.8	ND (0.1) *	ND (1)	21	ND (1) J	ND (1)	ND (2.1) *	31	31
AOC4-38	02/02/17	0 - 0.5	N	ND (2.1) *	3.9	130	ND (1.1) *	ND (1.1) *	0.44	38	8.8	28	4.7	ND (0.11) *	ND (1.1)	21	ND (1.1) J	ND (1.1)	ND (2.1) *	33	44
	02/02/17	2 - 2.2	N	ND (2.1) *	3.9	130	ND (1.1) *	1.2	0.33	34	10	16	1.9	ND (0.11) *	ND (1.1)	28	ND (1.1) J	ND (1.1)	ND (2.1) *	36	41
AOC4-39	01/05/17	0 - 0.5	N	ND (2.3) *	5.2	290	ND (1.1) *	ND (1.1) *	0.7	62	8.9	56 J	23	ND (0.11) *	ND (1.1)	22	ND (1.1) J	ND (1.1)	ND (2.3) J*	31	53
	01/05/17	0 - 0.5	FD	ND (2.2) *	4.6	270	ND (1.1) *	ND (1.1) *	0.78	58	9.4	30 J	27	ND (0.11) *	ND (1.1)	23	ND (1.1) J	ND (1.1)	ND (2.2) J*	33	51
AOC4-40	02/06/17	0 - 0.5	N	ND (2.1) *	2.7	140	ND (1) *	1.2	0.39	58 J	12	19	26 J	ND (0.1) *	ND (1)	32 J	ND (1) J	ND (1)	ND (2.1) *	31 J	47
	02/06/17	0 - 0.5	FD	ND (2.1) *	4.8	160	ND (1) *	1.5	0.47	98 J	13	16	110 J	ND (0.1) *	ND (1)	43 J	ND (1) J	ND (1)	ND (2.1) *	41 J	52
	02/06/17	0.5 - 1	N	ND (2.2) *	ND (1.1)	330	ND (1.1) *	2.1	ND (0.22)	120	28	12	15	ND (0.11) *	ND (1.1)	69	ND (1.1) J	ND (1.1)	ND (2.2) J*	82	60
AOC4-41	02/02/17	0 - 0.5	N	ND (2.1) *	3.2	110	ND (1) *	ND (1)	ND (0.21)	40	8.8	19	5.6	ND (0.1) *	ND (1)	24	ND (1) J	ND (1)	ND (2.1) *	29	53
AOC4-42	02/04/17	0 - 0.5	N	ND (2.1) J*	4.2	140	ND (1) *	ND (1)	ND (0.21)	24 J	5.6	12	7.9	ND (0.1) *	ND (1)	12	ND (1) J	ND (1)	ND (2.1) J*	20	33
	02/04/17	2 - 3	N	ND (2.1) *	2.8	130	ND (1) *	1	ND (0.21)	35	9.3	13	2	ND (0.1) *	ND (1)	30	ND (1) J	ND (1)	ND (2.1) *	33	33
AOC4-L01	05/14/10	0	N	ND (2.1) *	ND (1.1)	230	ND (1.1) *	ND (1.1) *	ND (0.43)	54	14	24	4.2	ND (0.1) *	ND (1.1)	37	ND (1.1)	ND (1.1)	ND (2.1) *	63	42
AOC4-L02	05/14/10	0	N	ND (2.1) *	ND (1.1)	340	ND (1.1) *	ND (1.1) *	ND (0.42)	53	13	25	4.4	ND (0.11) *	ND (1.1)	37	ND (1.1)	ND (1.1)	ND (2.1) *	61	44
AOC4-L03	05/13/10	0	N	ND (2.1) *	ND (1.1)	160	ND (1.1) *	ND (1.1) *	ND (0.43)	53	12	28	4.5	ND (0.1) *	ND (1.1)	36	ND (1.1)	ND (1.1)	ND (2.1) *	60	43
AOC4-M01	09/30/10	0	N	ND (2.2) *	ND (1.1)	180	ND (1.1) *	ND (1.1) *	ND (0.43)	51	12	23	4.6	ND (0.11) *	ND (1.1)	37	ND (1.1)	ND (1.1)	ND (2.2) *	53	43
AOC4-M02	09/30/10	0	N	ND (2.1) *	ND (1)	230	ND (1) *	ND (1)	ND (0.42)	47	11	22	4.1	ND (0.1) *	ND (1)	32	ND (1)	ND (1)	ND (2.1) *	51	38
AOC4-M03	10/04/10	0	N	ND (2.1) *	ND (1.1)	650	ND (1.1) *	ND (1.1) *	ND (0.43)	51	12	24	3.2	ND (0.1) *	ND (1.1)	38	ND (1.1)	ND (1.1)	ND (2.1) *	54	39
AOC4-M04	10/05/10	0	N	ND (2.1) J*	ND (1.1)	240 J	ND (1.1) J*	ND (1.1) J*	ND (0.42)	30	7.9 J	11	3.6 J	ND (0.1) *	ND (1.1) J	25	ND (1.1) J	ND (1.1)	ND (2.1) J*	38	33
AOC4-N01	09/30/10	0	N	ND (2) *	ND (1)	130	ND (1) *	ND (1)	ND (0.4)	22	5.2	9.5	5.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	26	32
AOC4-N02	09/30/10	0	N	ND (2.1) *	ND (1)	200	ND (1) *	ND (1)	ND (0.41)	31	8.5	13	3.3	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2.1) *	39	30
AOC4-N03	10/04/10	0	N	ND (2.1) *	ND (1.1)	170	ND (1.1) *	ND (1.1) *	ND (0.43)	23	6.4	11	5	ND (0.11) *	ND (1.1)	17	ND (1.1)	ND (1.1)	ND (2.1) *	28	30
AOC4-N04	10/05/10	0	N	ND (2.1) *	ND (1.1)	150	ND (1.1) *	ND (1.1) *	ND (0.42)	36	9	15	3.9	ND (0.11) *	ND (1.1)	27	ND (1.1)	ND (1.1)	ND (2.1) *	42	32

TABLE 3-39a
Sample Results: Metals in Soil
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC4-N05	10/05/10	0	N	ND (2.1) *	ND (1)	240	ND (1) *	ND (1)	ND (0.41)	34	8.9	14	4.1	ND (0.1) *	ND (1)	27	ND (1)	ND (1)	ND (2.1) *	41	32
AOC4-O02	10/04/10	0	N	ND (2.1) *	ND (1)	150	ND (1) *	ND (1)	ND (0.42)	20	5.6	8.7	4.4	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2.1) *	28	43
AOC4-O03	10/26/10	0	N	ND (2) *	ND (1)	220	ND (1) *	ND (1)	ND (0.41)	33	9.2	9	7	ND (0.1) *	ND (1)	28	ND (1)	ND (1)	ND (2) *	44	38
	10/26/10	0	FD	ND (2) *	ND (1)	220	ND (1) *	ND (1)	ND (0.41)	32	9	9.7	7.1	ND (0.1) *	ND (1)	28	ND (1)	ND (1)	ND (2) *	44	38
AOC4-O04	10/26/10	0	N	ND (2.1) *	ND (1.1)	190	ND (1.1) *	ND (1.1) *	0.66	48	12	12	6	ND (0.11) *	ND (1.1)	36	ND (1.1)	ND (1.1)	ND (2.1) *	52	45
AOC4-O05	10/27/10	0	N	ND (2.1) *	2.4	230	ND (1) *	ND (1)	ND (0.41)	31	9	12	6.5	ND (0.1) *	ND (1)	26	ND (1)	ND (1)	ND (2.1) *	46	38
	10/27/10	0	FD	ND (2.1) *	2.3	200	ND (1) *	ND (1)	ND (0.41)	32	9.2	13	6.6	ND (0.1) *	ND (1)	27	ND (1)	ND (1)	ND (2.1) *	45	37
AOC4-O06	10/07/10	0	N	ND (2) *	ND (1)	230	ND (1) *	ND (1)	ND (0.41)	34	8.1	15	34	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2) *	35	59
AOC4-P03	10/04/10	0	N	ND (2.1) *	ND (1)	160	ND (1) *	ND (1)	ND (0.41)	27	6.8	11	4.6	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2.1) *	34	30
AOC4-P04	11/19/10	0	N	ND (2.1) J*	ND (1)	140	ND (1) *	ND (1) J	11	43	8.3	10	5.3	ND (0.1) *	ND (1) J	25	ND (1) J	ND (1)	ND (2.1) J*	37	33
AOC4-P05	10/27/10	0	N	ND (2.1) *	1.8	190	ND (1) *	ND (1)	ND (0.41)	25	8.1	13	6.9	ND (0.1) *	ND (1)	23	ND (1)	ND (1)	ND (2.1) *	39	35
	10/27/10	0	FD	ND (2.1) *	ND (1)	200	ND (1) *	ND (1)	ND (0.41)	24	8.1	12	6.9	ND (0.1) *	ND (1)	23	ND (1)	ND (1)	ND (2.1) *	39	36
AOC4-P06	10/25/10	0	N	ND (2) *	ND (2)	220	ND (1) *	ND (1)	ND (0.41)	35	9.5	13	7.5	ND (0.1) *	ND (1)	29	ND (1)	ND (1)	ND (2) *	49	41
AOC4-P07	10/22/10	0	N	ND (2.1) J*	ND (1.1)	240 J	ND (1.1) J*	ND (1.1) J*	ND (0.43)	40	11	13	7.2	ND (0.11) *	ND (1.1) J	32	ND (1.1) J	ND (1.1)	ND (2.1) J*	52	43
AOC4-P08	10/22/10	0	N	ND (2.1) *	ND (1)	200	ND (1) *	ND (1)	ND (0.41)	26	8.4	10	7.3	ND (0.1) *	ND (1)	24	ND (1)	ND (1)	ND (2.1) *	43	39
AOC4-Q04	10/07/10	0	N	ND (2) *	ND (1)	140	ND (1) *	ND (1)	2.7	65	6.9	16	13	ND (0.1) *	ND (1)	18	ND (1)	ND (1)	ND (2) *	28	77
AOC4-Q05	10/07/10	0	N	ND (2) *	ND (1)	130	ND (1) *	ND (1)	0.42	22	7.2	19	11	ND (0.099) *	ND (1)	14	ND (1)	ND (1)	ND (2) *	26	61 J
	10/07/10	0	FD	ND (2) *	ND (1)	130	ND (1) *	ND (1)	0.56	23	5.8	19	8.6	ND (0.099) *	ND (1)	13	ND (1)	ND (1)	ND (2) *	25	48 J
AOC4-Q06	10/25/10	0	N	ND (2) *	ND (1)	280	ND (1) *	ND (1)	ND (0.41)	37	11	11	6.6	ND (0.1) *	ND (1)	30	ND (1)	ND (1)	ND (2) *	50	39
AOC4-Q07	10/25/10	0	N	ND (2.1) *	ND (1)	310	ND (1) *	ND (1)	ND (0.41)	46	12	14	8.2	ND (0.1) *	ND (1)	35	ND (1)	ND (1)	ND (2.1) *	54	45
AOC4-Q08	10/22/10	0	N	ND (2.1) *	ND (1.1)	260	ND (1.1) *	ND (1.1) *	ND (0.43)	37	11	15	6.6	ND (0.11) *	ND (1.1)	32	ND (1.1)	ND (1.1)	ND (2.1) *	54	40
AOC4-R05	10/29/10	0	N	ND (2) *	3.6	300	ND (1) *	ND (1)	ND (0.41)	35	11	13	6	ND (0.1) *	ND (1)	30	ND (1)	ND (1)	ND (2) *	53	42
	10/29/10	0	FD	ND (2.1) *	3.4	290	ND (1) *	ND (1)	ND (0.41)	38	11	14	5.9	ND (0.1) *	ND (1)	30	ND (1)	ND (1)	ND (2.1) *	52	40
AOC4-R06	10/07/10	0	N	ND (2) *	ND (1)	93	ND (1) *	ND (1)	ND (0.4)	13	3.9	11	8.8	ND (0.1) *	ND (1)	9	ND (1)	ND (1)	ND (2) *	20	37
AOC4-R07	10/08/10	0	N	ND (2) J*	ND (1)	140 J	ND (1) *	ND (1) J	ND (0.4)	31	8.5	11	4.5	ND (0.099) *	ND (1) J	27	ND (1)	ND (1)	ND (2) J*	36	33
AOC4-tar	02/06/17 Ψ	0	N	ND (2) *	5.6	52	ND (1) *	ND (1)	ND (0.2)	75	4.9	7.5	19	ND (0.1) *	ND (1)	21	ND (1) J	ND (1)	2.1	9.4	35
BH-69	03/18/11	0 - 0.5	N	ND (2.1) *	3.1	140	ND (1) *	ND (1)	0.72	58	12	20	9.6	ND (0.1) *	ND (1)	35	ND (1)	ND (1)	ND (2.1) *	50	73
PA-17	01/27/16	0 - 1	N	ND (2.1) *	4	130	ND (1) *	ND (1)	ND (0.21)	25	7.8	13	4.4	ND (0.1) *	ND (1)	21	ND (1)	ND (1)	ND (2.1) *	32	47
PA-OS2	04/06/11	0 - 0.5	FD	ND (2) *	5.5	200	ND (1) *	ND (1)	ND (0.4) J	35	12	16	4.9	ND (0.1) J*	5.2	26	ND (1)	ND (1)	ND (2) *	46	39
AOC1																					
PA-01	11/09/15	0 - 1	N	ND (2) J*	3.4	85 J	ND (1) *	ND (1)	0.65	20	3.7	8.5	9.3	ND (0.1) *	ND (1)	6.9	ND (1)	ND (1)	ND (2) *	18	80
PA-03	11/09/15	0 - 1	N	ND (2) *	3.8	140	ND (1) *	ND (1)	0.65	26	7.1	15	13	ND (0.1) *	ND (1)	15	ND (1)	ND (1)	ND (2) *	25	200
PA-04	11/09/15	0 - 1	N	ND (2) *	3.9	170	ND (1) *	ND (1)	0.69	36	7.1	14	25	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	33	56
PA-14	01/27/16	0 - 1	N	ND (2.1) *	4.5	180	ND (1) *	ND (1)	ND (0.21)	20	5.5	22	10	ND (0.1) *	ND (1)	8.7	ND (1)	ND (1)	ND (2.1) *	23	270
PA-15	01/27/16	0 - 1	N	ND (2.1) *	4.7	120	ND (1) *	ND (1)	1.1	170	6.6	26	20	ND (0.1) *	ND (1)	14	ND (1)	ND (1)	ND (2.1) *	25	120
PA-16	01/27/16	0 - 1	N	ND (2.1) *	4.1	150	ND (1) *	ND (1)	1.3	47	6.4	26	8.5	ND (0.1) *	1.2	35	ND (1)	ND (1)	ND (2.1) *	25	64

TABLE 3-39a

Sample Results: Metals in Soil
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Metals (mg/kg)																	
Interim Screening Level [1]:				**0.285**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**0.0125**	**1.37**	**27.3**	**1.47**	**5.15**	**0.78**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.68**	**15,000**	**160**	**71**	**0.3**	**120,000**	**23**	**3,100**	**400**	**11**	**390**	**1,500**	**390**	**390**	**0.78**	**390**	**23,000**
Residential DTSC-SL [3]:				**NE**	**0.11**	**NE**	**15**	**5.2**	**NE**	**36,000**	**NE**	**NE**	**80**	**1**	**NE**	**490**	**NE**	**390**	**NE**	**390**	**NE**
Ecological Comparison Values [4]:				**0.285**	**11.4**	**330**	**23.3**	**0.0151**	**139.6**	**36.3**	**13**	**20.6**	**0.0166**	**0.0125**	**2.25**	**0.607**	**0.177**	**5.15**	**2.32**	**13.9**	**0.164**
Background [5]:				**NE**	**11**	**410**	**0.672**	**1.1**	**0.83**	**39.8**	**12.7**	**16.8**	**8.39**	**NE**	**1.37**	**27.3**	**1.47**	**NE**	**NE**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
AOC9																					
PA-05	11/09/15	0 - 1	N	ND (2) *	3.6	130	ND (1) *	ND (1)	0.42	27	6.9	16	7.4	ND (0.1) *	ND (1)	19	ND (1)	ND (1)	ND (2) *	33	83
PA-23	01/27/16	0 - 1	N	ND (2.1) *	11	64	ND (1.1) *	ND (1.1) *	0.52	8.9	3.3	6.7	5.1	ND (0.11) *	ND (1.1)	6.3	ND (1.1)	ND (1.1)	ND (2.1) *	18	49
AOC10																					
PA-06	11/09/15	0 - 1	N	ND (2) *	2.4	69	ND (1) *	ND (1)	0.89	30	8.1	15	5.2	ND (0.1) *	ND (1)	20	ND (1)	ND (1)	ND (2) *	23	74
PA-18	01/27/16	0 - 1	N	ND (2.1) *	5.2	130	ND (1) *	ND (1)	0.28	65	7.3	64	47	ND (0.1) *	1.4	22	ND (1)	ND (1)	ND (2.1) *	33	190
PA-19	01/27/16	0 - 1	N	ND (2.3) *	5.8	150	ND (1.1) *	ND (1.1) *	ND (0.46)	34	5.8	160	30	ND (0.12) *	9.8	15	ND (1.1)	ND (1.1)	ND (2.3) *	28	550
PA-20	01/27/16	0 - 1	N	ND (2.1) *	5.2	96	ND (1) *	ND (1)	0.82 J	33	5.5	11	23	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	27	84
PA-21	01/27/16	0 - 1	N	ND (2) *	5.5	96	ND (1) *	ND (1)	ND (0.2)	49	5.8	26	32	ND (0.1) *	1.2	12	ND (1)	ND (1)	ND (2) *	28	150
AOC11																					
PA-07	11/09/15	0 - 1	N	ND (2) *	4.9	160	ND (1) *	ND (1)	1.9	66	4.9	19	17	ND (0.1) *	1.3	13	ND (1)	ND (1)	ND (2) *	22	170
PA-09	01/27/16	0 - 1	N	ND (2) *	4.2	95	ND (1) *	ND (1)	ND (0.2)	21	6.7	13	150	0.18	ND (1)	13	ND (1)	ND (1)	ND (2) *	32	130
PA-10	01/27/16	0 - 1	N	ND (2.1) *	7	150	ND (1) *	ND (1)	0.95	40	4.3	24	56	ND (0.1) *	ND (1)	8	ND (1)	ND (1)	ND (2.1) *	20	190
PA-11	01/27/16	0 - 1	N	ND (2.1) *	4.3	140	ND (1) *	ND (1)	0.35	63	5.6	23	28	ND (0.1) *	3.3	16	ND (1)	ND (1)	ND (2.1) *	20	300
	01/25/17	2 - 3	N	ND (2.1) *	4.9	180	ND (1) *	ND (1)	---	10	4	7.1	4.7	ND (0.1) *	ND (1)	7.4	ND (1) J	ND (1)	ND (2.1) *	19	29
	01/25/17	2 - 3	FD	ND (2.1) *	4.7	160	ND (1) *	ND (1)	---	10	3.9	6.9	3.7	ND (0.1) *	ND (1)	7.4	ND (1) J	ND (1)	ND (2.1) *	18	24
PA-12	01/27/16	0 - 1	N	ND (2.1) *	6	190	ND (1) *	ND (1)	0.56	50	5.3	31	12	ND (0.1) *	3.1	13	ND (1)	ND (1)	ND (2.1) *	25	130
	01/25/17	2 - 3	N	ND (2.1) *	5.6	150	ND (1) *	ND (1)	---	13	4.7	9.7	5.7	ND (0.1) *	ND (1)	8.3	ND (1) J	ND (1)	ND (2.1) *	18	37 J
AOC27																					
PA-13	01/27/16	0 - 1	N	ND (2.1) *	4.8	200	ND (1) *	ND (1)	0.26	15	6.3	12	5.8	ND (0.1) *	ND (1)	11	ND (1)	ND (1)	ND (2.1) *	27	45
AOC31																					
PA-08	11/09/15	0 - 1	N	ND (2.2) *	4.8	290	ND (1.1) *	ND (1.1) *	0.82	26	10	62	19	ND (0.11) *	ND (1.1)	20	ND (1.1)	ND (1.1)	ND (2.2) *	33	94
	01/12/16	2 - 3	N	ND (2.1) J*	4.4	330	ND (1) *	ND (1)	0.26	12	8.6 J	13 J	4.6 J	ND (0.1) *	ND (1)	9.1	ND (1) J	ND (1)	ND (2.1) *	35 J	44
	01/12/16	2 - 3	FD	ND (2.1) *	3.6	280	ND (1) *	ND (1)	0.23	14	6.8 J	5.5	9.3 J	ND (0.1) *	ND (1)	8.9	ND (1)	ND (1)	ND (2.1) *	26 J	38

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).
Results greater than or equal to the interim screening level are circled; however, if the interim screening level is equal to the background value, only results greater than the interim screening level are circled.

§	Sample removed during 2020 excavation
Y	debris sample
ψ	tar sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the Ecological Comparison Value , residential DTSC-SL, or USEPA residential regional screening value.
[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.
[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.
[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.
[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-39b

Sample Results: Contract Laboratory Program Inorganics
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
			Interim Screening Level[1] :	16,400	66,500	29,303	12,100	402	4,400	2,070	0.9
			Residential Regional Screening Levels[2] :	77,000	NE	55,000	NE	1,800	NE	NE	23
			Residential DTSC-SL[3] :	NE	NE	NE	NE	1,800	NE	NE	NE
			Ecological Comparison Values[4] :	NE	NE	NE	NE	220	NE	NE	0.9
			Background[5] :	16,400	66,500	29,303	12,100	402	4,400	2,070	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
SWMU5											
SWMU5-1	12/08/15	0 - 1	N	5,200	15,000	9,100	4,100	140	1,500	450	ND (0.206)
SWMU6											
SWMU6-1	12/07/15	0 - 1	N	5,400	15,000	11,000	4,700	250	1,100	480	ND (0.205)
AOC8											
AOC8-1	01/07/16	0 - 0.5	N	13,000	36,000	23,000	11,000	300	2,700	400	ND (0.0442)
AOC13											
AOC13-PITOS7	07/26/11	0 - 0.5	N	8,300	20,000	14,000	4,900	240	1,400	320	0.73
AOC13-PITOS8	07/26/11	0 - 0.5	N	12,000 J	26,000	19,000	6,100	280	1,800	180	0.38
AOC13-PITOS9	07/26/11	0 - 0.5	N	10,000	22,000	17,000	5,400	260	1,600	ND (10)	1
AOC16											
AOC16-1	01/11/16	0 - 0.5	N	5,800	9,800	11,000	4,800	150	1,200 J	120 J	ND (0.207) J
AOC21											
AOC21-1	01/12/16	0 - 0.5	N	7,100	20,000	14,000	6,200	210	1,800	1,800	ND (0.214)
AOC21-OS1	09/23/14	0 - 0.5	N	---	31,000	---	---	---	---	570	---
AOC21-OS2	09/23/14	0 - 0.5	N	---	20,000	---	---	---	---	400	---
	09/23/14	1 - 1.5	N	---	16,000	---	---	---	---	270	---
AOC21-OS3	09/23/14	0 - 0.5	N	---	36,000	---	---	---	---	570	---
AOC21-OS4	09/23/14	0 - 0.5	N	---	17,000	---	---	---	---	700	---
AOC22											
AOC22-3	01/17/17	0 - 0.5	N	4,400	17,000	7,600	2,900	140	1,100 J	670 J	ND (0.205) J
AOC24											
AOC24-OS1	12/14/11	0 - 0.5	N	7,600	31,000	14,000	6,300	260 J	1,600	1,100	ND (0.25)
Unit4.3-4.5											

TABLE 3-39b

Sample Results: Contract Laboratory Program Inorganics
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**23**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**1,800**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**29,303**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
Units4.3-1	12/07/15	0 - 1	N	8,000	20,000	16,000	6,100	190	1,700	340	ND (0.212)
AOC4											
AOC4-37	02/04/17	0 - 0.5	N	13,000	100,000	19,000	10,000	320	1,800 J	140 J	ND (0.209) J
AOC4-42	02/04/17	0 - 0.5	N	6,400	24,000	14,000	5,700	220	1,800 J	750 J	ND (0.207) J
AOC11											
PA-11	01/25/17	2 - 3	N	6,300	36,000	8,800	5,600	180	1,600	590	ND (0.215) J
PA-12	01/25/17	2 - 3	N	6,800	27,000	11,000 J	5,900	200	1,700 J	820	ND (0.211) J
AOC31											
PA-08	01/12/16	2 - 3	N	9,000	21,000	19,000	6,800	260	3,500	260	ND (0.207)
	01/12/16	2 - 3	FD	8,000	18,000	17,000	5,700	220	3,700 J	300 J	ND (0.209)

TABLE 3-39b

Sample Results: Contract Laboratory Program Inorganics
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).

Results greater than or equal to the interim screening level are circled; however, if the interim screening level is equal to the background value, only results greater than the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

[1] Interim screening level is background value. If background value is not available then the interim screening value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-39c

Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
SWMU5																								
SWMU5-1	12/08/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (51)	ND (51)	ND (51)	ND (51)	9.5	ND (51)	15	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	14	ND	44.3	57
SWMU5-2	12/07/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (520) *	ND (520)	ND (520)	ND (520)	ND (52)	ND (520) *	23 J	ND (5.2)	ND (520)	ND (5.2)	5.8 J	22 J	5.8	45	580
SWMU6																								
SWMU6-1	12/07/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	6.8 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	6.5 J	ND	13.3	59
AOC7																								
AOC7-5	01/06/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC13																								
AOC13-13	01/09/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND (52)	ND (52)	ND (52)	ND (52)	14	ND (52)	22	ND (5.2)	ND (52)	ND (5.2)	7.3	17	7.3	58.2	58
AOC13-18	01/06/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	11	9.9	19 J	ND (5.1)	5.5	14 J	ND (5.1)	28 J	ND (5.1)	ND (5.1)	ND (5.1)	13 J	22 J	13	109.4	16
	01/06/16	0.5 - 1	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	28	26	46 J	9.9	16	38 J	ND (5.1)	83 J	ND (5.1)	10	ND (5.1)	37 J	58 J	37	314.9	37
	01/06/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC13-19	01/08/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	6.3	ND	21	6.6
	01/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC13-20	01/08/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	13	ND (53)	ND (53)	ND (53)	ND (53)	22	ND (53)	36	ND (5.3)	ND (53)	ND (5.3)	8.8	33	8.8	104	60
	01/08/16	2 - 3	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.5	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	7.5	6.7
AOC13-21	01/08/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	24	ND (51)	74	ND (51)	ND (51)	46	ND (51)	65 J	ND (5.1)	ND (51)	ND (5.1)	26	60 J	26	269	64
	01/08/16	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	15 J	ND (51)	58	ND (51)	ND (51)	30 J	ND (51)	35 J	ND (5.1)	ND (51)	ND (5.1)	9.5 J	32 J	9.5	170	61
	01/08/16	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	6.9 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	8.6 J	ND	15.5	59
AOC13-26	01/09/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.6	ND (53)	ND (53)	ND (53)	ND (53)	9.5	ND (53)	19	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	16	ND	50.1	59
AOC13-30	01/07/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	6.9	78	88	160	23	56	80	ND (5.4)	150	ND (5.4)	25	ND (5.4)	59	130	65.9	790	120
	01/07/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC13-31	01/07/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	13	ND (54)	ND (54)	ND (54)	ND (54)	23	ND (54)	34	ND (5.4)	ND (54)	ND (5.4)	12	32	12	102	61
	01/07/16	0 - 0.5	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	9 J	ND (54)	ND (54)	ND (54)	ND (54)	13 J	ND (54)	22 J	ND (5.4)	ND (54)	ND (5.4)	7.5 J	20 J	7.5	64	61
	01/07/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	18 J	ND (53)	ND (53)	ND (53)	ND (53)	28 J	ND (53)	35 J	ND (5.3)	ND (53)	ND (5.3)	8.1 J	35 J	8.1	116	60
AOC13-32	12/04/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC13-33	02/18/17 [Y]	0	N	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	160 J	ND (54)	ND (54)	ND (54)	ND (54)	79 J	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	ND (54)	64 J	ND	303	76
	02/15/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1) J	ND (5.1)	9.3 J	89 J	64	150	33	33	96 J	ND (5.1)	200 J	ND (5.1) J	27	ND (5.1)	120 J	170 J	129.3	862	94
	02/15/17	0 - 0.5	FD	ND (5.1)	5.1	34 J	7.1	67 J	620 J	350 J	800 J	130	210	600 J	ND (5.1)	1,600 J	28 J	120	13	980 J	1,300 J	1,134	5,730	510
	02/15/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.5	62	33 J	69	5.9 J	34 J	57	ND (5.2) J	120 J	ND (5.2)	6.9 J	ND (5.2)	74	93	80.5	480.8	50
AOC13-9	01/09/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	13	ND (52)	ND (52)	ND (52)	ND (52)	19	ND (52)	38	ND (5.2)	ND (52)	ND (5.2)	9.4	27	9.4	97	59
AOC13-Debris	04/26/17 [Y]	0	N	ND (5.3)	5.7	40	6.8	150	2,200	2,000 J	2,700 J	940 J	1,000 J	1,700	ND (5.3)	2,600	26	980 J	8.5	890	2,700	1,127	16,820	2,600
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	44	57	120	24	32	58 J	ND (5)	93	ND (5)	25	ND (5)	23	85	23	538	79
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	16	22	130	19	27	41	ND (5)	30	ND (5)	20	ND (5)	6.7	28	6.7	333	41
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.3 J	5.3 J	12 J	ND (5)	ND (5)	ND (5) J	ND (5)	8 J	ND (5)	ND (5)	ND (5)	ND (5)	7.3 J	ND	38.9	9.9
	07/26/11	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	13	22	8.1	9.5	6.1 J	ND (5.1)	22	ND (5.1)	7.4	ND (5.1)	ND (5.1)	20	ND	120.1	20

TABLE 3-39c
Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels [2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC13-Tar	04/26/17 Ψ	0	N	ND (51) J	ND (51) J	ND (51) J	ND (51) J	ND (51) J	400 J	ND (51) J	ND (51) J	ND (51) J	ND (51) J	1,900 J	ND (51) J	140 J	ND (51) J	ND (51) J	ND (51) J	130 J	910 J	130	3,350	98
BH-65	03/24/11	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	6.5	ND (5.1)	ND (5.1)	ND (5.1)	5.5	ND (5.1)	ND (5.1)	ND (4.5)	ND (5.1)	5.5	ND	23	6.2
BH-66	03/23/11	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (4.8)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
	03/23/11	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (4.8)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
PA-02	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.1	ND (51)	ND (51)	ND (51)	ND (51)	19	ND (51)	21	ND (5.1)	ND (51)	ND (5.1)	6.4	22	6.4	70.1	57
PA-22	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.6	ND (5.2)	ND (5.2)	5.5	ND (5.2)	7.6	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	ND	28.6	6.6
PA-OS3	12/10/14	0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.9	13	26	ND (5.1)	7.9	15	ND (5.1)	24	ND (5.1)	ND (5.1)	ND (5.1)	6.5	22	6.5	115.8	19
	12/10/14	3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
PGE-LT-OS9	03/08/07	0.5	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	03/08/07	3	N	---	---	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
PGE-UTOS1	03/08/07	0.5	N	---	---	ND (5.5)	ND (5.5)	ND (5.5)	14	28	43	35	14	29	ND (5.5)	45	ND (5.5)	24	ND (5.5)	13	42	13	274	39
SD-24	03/09/16	0 - 1	N	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	120 J	260 J	670 J	99 J	240 J	270 J	ND (26)	290 J	ND (26)	83 J	ND (26)	68 J	280 J	68	2,312	360
	03/09/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
SD-31	02/15/17	0 - 0.5	N	6.9	ND (5.1)	30	70	210	1,300 J	1,400 J	2,800 J	1,800 J	930 J	1,400 J	ND (5.1)	2,300 J	23	1,500 J	ND (5.1)	840 J	2,500 J	1,180	15,930	2,000
	02/15/17	0 - 0.5	FD	9.3	6.2	34	76	230	1,700 J	1,600 J	3,600 J	1,700 J	670 J	1,800 J	ND (5.2)	3,000 J	27	1,500 J	6.2	1,000 J	3,100 J	1,389	18,670	2,300
	02/15/17	1 - 2	N	14	16	ND (5.2)	ND (5.2)	14	130	140	280	100	80	140	ND (5.2)	230	ND (5.2)	90	ND (5.2)	96	220	140	1,410	190
	02/15/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.3	33	48 J	94	15 J	38 J	35	ND (5.2)	46	ND (5.2)	15 J	ND (5.2)	17	50	25.3	374	65
SD-07	12/17/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	11.2	6.2
	12/17/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (51)	ND (51)	ND (51)	ND (51)	9.9	ND (51)	15	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	14	ND	44	57
SD-OS30	07/18/17	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	34	67	150	87	38 J	65	ND (5)	64	ND (5)	71	ND (5)	13	67	13	643	95
SD-OS38	12/13/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	20	35 J	64	16 J	36 J	39	ND (5.1)	43	ND (5.1)	14 J	ND (5.1)	8.8	44	8.8	311	48
SD-OS39	11/29/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	26	37	82	14	30	41	ND (5.1)	51	ND (5.1)	14	ND (5.1)	14	49	14	344	52
	11/29/16	0 - 0.5	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	24	35	90	11	27	41	ND (5)	48	ND (5)	12	ND (5)	11	45	11	333	50
	11/29/16	2.5 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	5.9	6.3
	11/29/16	2.5 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
SD-OS40	12/06/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
SD-OS43	07/18/17	0 - 0.5	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	13	17 J	54	8 J	18 J	22	ND (5)	35	ND (5)	8 J	ND (5)	14	30	14	205	27
AOC16																								
AOC16-grit	01/05/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	18	19	44	10	10	22	ND (5.1)	45	ND (5.1)	10	ND (5.1)	20	37	20	215	29
AOC18																								
AOC18-1	01/12/16	0 - 0.5	N	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (260) *	ND (260)	ND (260)	ND (260)	47	ND (260) *	56	ND (26)	ND (260)	ND (26)	ND (26)	56	ND	159	290
	01/12/16	0 - 0.5	FD	ND (26)	ND (26)	ND (26)	ND (26)	ND (26)	ND (260)	ND (260) *	ND (260)	ND (260)	ND (260)	ND (260)	ND (260) *	60	ND (26)	ND (260)	ND (26)	ND (26)	64	ND	124	300
AOC18-10	12/16/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	14 J	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	13 J	ND	27	59
AOC18-11	01/11/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.7	ND (53)	ND (53)	ND (53)	ND (53)	8.1	ND (53)	19	ND (5.3)	ND (53)	ND (5.3)	7.1	17	7.1	49.8	59
	01/11/16	2 - 3	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC18-12	12/04/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.6	80	77	140	ND (52)	ND (52)	76	ND (52)	140	ND (5.2)	ND (52)	ND (5.2)	50	120	55.6	633	130

TABLE 3-39c

Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
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PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
			Residential Regional Screening Levels [2] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC18-2	01/12/16	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (54)	ND (54)	ND (54)	ND (54)	8.2	ND (54)	16	ND (5.4)	ND (54)	ND (5.4)	5.7	15	5.7	39.2	60
AOC18-5	12/04/15	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	10	75	80	140	ND (52)	56	74	ND (52)	150	ND (5.2)	ND (52)	ND (5.2)	63	130	73	705	130
AOC18-6	12/04/15	0 - 0.5	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	23	ND (54)	75	ND (54)	ND (54)	35	ND (54)	45	ND (5.4)	ND (54)	ND (5.4)	8.2	46	8.2	224	67
AOC18-9	12/07/15	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	19 J	ND (5.1)	ND (51)	ND (5.1)	8.2 J	17 J	8.2	36	59
	12/07/15	0 - 0.5	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (510) *	ND (510)	ND (510)	ND (510)	51	ND (510) *	21 J	ND (5.1)	ND (510)	ND (5.1)	14 J	17 J	14	89	570
AOC20																								
AOC20-OS11	12/21/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.5	17	30	8.1	13	16	ND (5.1)	20	ND (5.1)	7.8	ND (5.1)	ND (5.1)	20	ND	141.4	24
AOC21																								
AOC21-1	01/12/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	25	ND (53)	64	ND (53)	ND (53)	43	ND (53)	53	ND (5.3)	ND (53)	ND (5.3)	12	52	12	237	65
AOC21-OS1	09/23/14	0 - 0.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND	ND	ND (59)
AOC21-OS2	09/23/14	0 - 0.5	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	87	ND (50)	ND (50)	ND (50)	ND (50)	67	ND (50)	ND (50)	ND (50)	ND (50)	61	ND	215	64
	09/23/14	1 - 1.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	54	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (7.3)	ND (51)	ND (51)	ND	54	62
AOC21-OS3	09/23/14	0 - 0.5	N	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	51	120	ND (51)	ND (51)	51	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND (51)	ND	222	94
AOC21-OS4	09/23/14	0 - 0.5	N	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND	ND	ND (58)
AOC22																								
AOC22-1	01/06/16	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7	12	6	ND (5.3)	7.4	ND (5.3)	8.8	ND (5.3)	5.3	ND (5.3)	ND (5.3)	9.1	ND	55.6	12
	01/06/16	0 - 0.5	FD	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.5	14	24	11	9.5	14	ND (5.3)	17	ND (5.3)	9.8	ND (5.3)	ND (5.3)	17	ND	125.8	21
AOC22-2	01/06/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	27	21	46	9	18	43	ND (5.2)	49	ND (5.2)	9.3	ND (5.2)	17	57	17	279.3	32
	01/06/16	2 - 3	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	37	55	92	59	ND (55)	59	ND (55)	66	ND (5.5)	ND (55)	ND (5.5)	14	67	14	435	98
AOC22-3	01/17/17	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	26 J	31	72	11	16	32	ND (5.1)	45	ND (5.1)	11	ND (5.1)	13	45	13	289	45
AOC24																								
AOC24-1	01/10/16	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (51)	ND (51)	ND (51)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (57)
AOC24-2	01/11/16	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	10 J	ND (53)	ND (53)	ND (53)	ND (53)	15 J	ND (53)	21 J	ND (5.2)	ND (53)	ND (5.2)	ND (5.2)	19 J	ND	65	60
	01/11/16	0 - 0.5	FD	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	7.2	ND (54)	ND (54)	ND (54)	ND (54)	11	ND (54)	20	ND (5.4)	ND (54)	ND (5.4)	ND (5.4)	18	ND	56.2	60
AOC24-OS1	12/14/11	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	12	10	26	5.2	10	17	ND (5.2)	26	ND (5.2)	ND (5.2)	ND (5.2)	8.3	24	8.3	130.2	17
AOC24-OS2	12/14/11	0 - 0.5	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
Unit4.3-4.5																								
Units4.3-1	12/07/15	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	ND (53)	8.8 J	ND (5.3)	ND (53)	ND (5.3)	ND (5.3)	12 J	ND	20.8	61
AOC4																								
AOC4-23	12/06/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	6.8	7.1	14	5.7	ND (5.1)	9.1	ND (5.1)	12	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	12	ND	66.7	12
AOC4-24	12/06/15	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	8	160	120	260	28	100	190	ND (5)	430	ND (5)	32	ND (5)	79	390	87	1,710	170
	12/06/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	56	1,300	800	1,600	79	460	1,700	ND (5.1)	3,600	ND (5.1)	100	ND (5.1)	850	3,400	906	13,039	1,100
AOC4-25	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	19	21	46	14	12	28	ND (5.1)	53	ND (5.1)	13	ND (5.1)	10	53	10	259	31
AOC4-26	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	7.8	ND (5.1)	ND (5.1)	5.4	ND (5.1)	9.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	9.1	ND	32.1	6.4
	11/20/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-39c

Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
Residential Regional Screening Levels[2] :				18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC4-27	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	92	95	220	32	69	140	ND (5.1)	460	ND (5.1)	34	ND (5.1)	210	360	210	1,502	130
	11/20/15	2 - 3	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	52	52	94	31	26	62	ND (5.1)	80	ND (5.1)	29	ND (5.1)	13	83	13	509	72
AOC4-28	11/20/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	52	2,200	1,700	3,400	530	1,100	2,200	ND (5.1)	5,200	ND (5.1)	590	ND (5.1)	710	4,800	762	21,720	2,300
AOC4-36	01/05/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	12	12	28	12	6	15	ND (5.3)	27	ND (5.3)	9.8	ND (5.3)	5.6	26	5.6	147.8	20
	01/05/17	0.9 - 1	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.2	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.9	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	6.6	ND	19.7	6.7
AOC4-37	02/04/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.8 J	7.7	18	5.3	ND (5.3)	9.5	ND (5.3)	21	ND (5.3)	ND (5.3)	ND (5.3)	5.3	20	5.3	91.3	13
AOC4-38	02/02/17	0 - 0.5	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	21	15	32	10	8.6	22	ND (5.3)	44	ND (5.3)	9.6	ND (5.3)	12	39	12	201.2	24
	02/02/17	2 - 2.2	N	ND (5.3)	ND (5.3)	18	ND (5.3)	73	1,200	580	1,300	220	160	940	ND (5.3)	2,500	ND (5.3)	230	ND (5.3)	960	2,000	1,051	9,130	860
AOC4-39	01/05/17	0 - 0.5	N	ND (5.7)	ND (5.7)	ND (5.7)	ND (5.7)	10	390	240	600	140	140	390	ND (5.7)	820	ND (5.7)	140	ND (5.7)	140	730	150	3,590	360
	01/05/17	0 - 0.5	FD	ND (5.6)	ND (5.6)	ND (5.6)	ND (5.6)	7.8	280	210	490	110	100	250	ND (5.6)	580	ND (5.6)	110	ND (5.6)	100	550	107.8	2,680	300
AOC4-40	02/06/17	0 - 0.5	N	ND (5.2)	ND (5.2)	17	ND (5.2)	200 J	4,600 J	1,900 J	4,400 J	1,000 J	940 J	3,500 J	ND (5.2)	9,400 J	ND (5.2)	1,000 J	ND (5.2)	2,500 J	7,700 J	2,717	34,440	2,900
	02/06/17	0 - 0.5	FD	ND (5.2)	ND (5.2)	7.9	ND (5.2)	94 J	1,200 J	620 J	1,500 J	180 J	360 J	890 J	ND (5.2)	3,000 J	ND (5.2)	200 J	ND (5.2)	1,100 J	2,400 J	1,202	10,350	920
	02/06/17	0.5 - 1	N	ND (5.5)	ND (5.5)	ND (5.5)	ND (5.5)	78	2,900	1,800	3,500	470	880	2,400	ND (5.5)	4,200	ND (5.5)	520	ND (5.5)	560	4,800	638	21,470	2,500
AOC4-41	02/02/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	110 J	56 J	180 J	11 J	69 J	300 J	ND (5.2)	88 J	ND (5.2)	11 J	ND (5.2)	100 J	89 J	100	914	90
AOC4-42	02/04/17	0 - 0.5	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	16 J	19	46	8.3	12	21	ND (5.2)	30	ND (5.2)	8	ND (5.2)	9.7	30	9.7	190.3	29
	02/04/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-L01	05/14/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-L02	05/14/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-L03	05/13/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-M01	09/30/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC4-M02	09/30/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	5.2	6
AOC4-M03	10/04/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-M04	10/05/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-N01	09/30/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	7.7	9	19	10	ND (5)	14	ND (5)	29	ND (5)	8.4	ND (5)	7	24	7	121.1	15
AOC4-N02	09/30/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-N03	10/04/10	0	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND	ND	ND (6.2)
AOC4-N04	10/05/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	5.6	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	10	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	7.8	ND	23.4	6.4
AOC4-N05	10/05/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-O02	10/04/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	5.9	ND	12.9	6
AOC4-O03	10/26/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/26/10	0	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-O04	10/26/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-O05	10/27/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/27/10	0	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-O06	10/07/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)

TABLE 3-39c

Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	10,000	1,160	110
			Residential Regional Screening Levels[2] :	18,000	240,000	3,600,000	3,600,000	18,000,000	1,100	110	1,100	1,800,000	11,000	110,000	110	2,400,000	2,400,000	1,100	3,800	18,000,000	1,800,000	NE	NE	110
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	10,000	1,160	NE
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	37.6	267.4	55
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (ghi) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	PAH Low molecular weight	PAH High molecular weight	B(a)P Equivalent
AOC4-P03	10/04/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.9	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.3	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	7.9	ND	24.1	6.4
AOC4-P04	11/19/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
AOC4-P05	10/27/10	0	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	10/27/10	0	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.6	ND (5.2)	ND (5.2)	ND (5.2)	5.2	5.8	5.2	14.4	6
AOC4-P06	10/25/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.8	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.8	5.9
AOC4-P07	10/22/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	9.2	7.5	16	8.2	5.3	12	ND (5.3)	24	ND (5.3)	6.8	ND (5.3)	12	18	12	107	13
AOC4-P08	10/22/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-Q04	10/07/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	22	27	61	29	21	40	ND (5.1)	46	ND (5.1)	24	ND (5.1)	14	40	14	310	40
AOC4-Q05	10/07/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	10	9	20	8	6	15	ND (5)	22	ND (5)	6.7	ND (5)	6.4	18	6.4	114.7	15
	10/07/10	0	FD	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	11	10	21	8.1	6.4	16	ND (5)	28	ND (5)	6.7	ND (5)	13	23	13	130.2	16
AOC4-Q06	10/25/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-Q07	10/25/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.5	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	10.6	6.2
AOC4-Q08	10/22/10	0	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND	ND	ND (6.1)
AOC4-R05	10/29/10	0	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
	10/29/10	0	FD	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC4-R06	10/07/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	6.7	5.7	19	5.4	5	17	ND (5)	27	ND (5)	ND (5)	ND (5)	8.7	18	8.7	103.8	11
AOC4-R07	10/08/10	0	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	14	9	21	6	6	18	ND (5)	42	ND (5)	5.7	ND (5)	23	30	23	151.7	16
AOC4-tar	02/06/17 Ψ	0	N	230 J	250 J	43,000	4,800	2,700,000	6,900,000	3,000,000	6,700,000	990,000	2,900,000	6,900,000	210,000 J	27,000,000	37,000	1,000,000	140 J	21,000,000	20,000,000	23,785,420	75,600,000	4,700,000
BH-69	03/18/11	0 - 0.5	N	ND (5.2)	6.3 J	ND (5.2)	ND (5.2)	ND (5.2)	12	17	29	17	10	19	ND (5.2)	350	ND (5.2)	15	ND (5.2)	9.4	28	15.7	497	25
PA-17	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (58)
PA-OS2	04/06/11	0 - 0.5	N	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	7.1	6.4	11	ND (5.1)	ND (5.1)	8.1	ND (5.1)	7.1	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	8.4	ND	48.1	11
	04/06/11	0 - 0.5	FD	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (51)	ND (5.1)	ND (5.1)	ND	ND	ND (5.9)
AOC1																								
PA-01	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	16	26	64 J	9.5	18 J	31	ND (5.1)	35	ND (5.1)	10	ND (5.1)	11	34	11	243.5	38
PA-03	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	47 J	95	230	51	75	120 J	ND (51)	110 J	ND (5.1)	ND (51)	ND (5.1)	34 J	100 J	34	828	150
PA-04	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	5.1	6.1
PA-14	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	130	ND (52)	ND (52)	ND (52)	ND (52)	37 J	ND (5.2)	ND (52)	ND (5.2)	12 J	28 J	12	195	70
PA-15	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.7 J	210 J	350	720	180	240	350	ND (52)	230 J	ND (5.2)	180	5.5 J	150 J	190 J	165.2	2,650	490
PA-16	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	7.6	ND (52)	14	ND (5.2)	ND (52)	ND (5.2)	9.6	12	9.6	33.6	58
AOC9																								
PA-05	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.1	16	7.4	ND (5.1)	11	ND (5.1)	15	ND (5.1)	6.1	ND (5.1)	ND (5.1)	14	ND	77.6	13
PA-23	01/27/16	0 - 1	N	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	ND (5.3)	43	65	98	69	44	68	ND (5.3)	84	ND (5.3)	53	ND (5.3)	28	79	28	603	88
AOC10																								
PA-06	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	8.5	5.1	ND (5.1)	5.1	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND	18.7	6.5
PA-18	01/27/16	0 - 1	N	6.2 J	13 J	8.3 J	6.2 J	27 J	1,000 J	1,100	1,900	590	800	1,000	ND (520) *	1,700	6.6 J	560	12 J	780 J	1,600	859.3	10,250	1,700

TABLE 3-39c

Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level [1] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**10,000**	**1,160**	**110**
Residential Regional Screening Levels[2] :				**18,000**	**240,000**	**3,600,000**	**3,600,000**	**18,000,000**	**1,100**	**110**	**1,100**	**1,800,000**	**11,000**	**110,000**	**110**	**2,400,000**	**2,400,000**	**1,100**	**3,800**	**18,000,000**	**1,800,000**	**NE**	**NE**	**110**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**10,000**	**1,160**	**NE**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**37.6**	**267.4**	**55**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
PA-19	01/27/16	0 - 1	N	ND (57)	ND (57)	ND (57)	ND (57)	95	ND (3,800) *	4,400 J	15,000	ND (3,800)	5,800 J	5,200 J	ND (3,800) *	1,300	ND (57)	ND (3,800) *	ND (57)	490	1,200	585	32,900	8,200
PA-20	01/27/16	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	26	29	410	610	1,400	450	330	780	ND (5.1)	830	ND (5.1)	410	ND (5.1)	120	720	175	5,940	840
PA-21	01/27/16	0 - 1	N	ND (5.1)	ND (5.1)	8.5 J	25 J	68	1,200	1,700	2,900	840	1,100	2,100	ND (5.1)	2,600	9.8 J	840	14 J	570	2,600	695.3	15,880	2,200
AOC11																								
PA-07	11/09/15	0 - 1	N	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	ND (5.1)	230	300	640	170	250	410	68	540	ND (5.1)	170	ND (5.1)	180	530	180	3,308	470
PA-09	01/27/16	0 - 1	N	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	12	ND (50)	100	ND (50)	ND (50)	20	ND (50)	23	ND (5)	ND (50)	ND (5)	10	20	10	175	64
PA-10	01/27/16	0 - 1	N	ND (5.1)	7.5 J	11 J	9.2 J	38 J	1,600 J	1,600	2,600	750	930	2,600 J	210	3,700 J	8.9 J	790	8.6 J	1,300 J	3,400 J	1,383	18,180	2,300
PA-11	01/27/16	0 - 1	N	ND (5.2)	10 J	ND (5.2)	ND (5.2)	19 J	350 J	550	1,500	ND (520)	ND (520)	600	ND (520) *	770	ND (5.2)	ND (520)	10 J	250 J	720	289	4,490	1,000
	01/25/17	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8.7	ND (5.2)	ND (5.2) J	5.6	ND (5.2)	8.7	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	8	ND	31	6.6
	01/25/17	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	6.6	12	5.6	ND (5.2) J	7	ND (5.2)	10	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	9.8	ND	51	11
PA-12	01/27/16	0 - 1	N	ND (5.2)	10 J	ND (5.2)	ND (5.2)	ND (5.2)	130 J	130	250	69	86	170	ND (52)	170 J	ND (5.2)	66	ND (5.2)	140 J	150 J	150	1,221	200
	01/25/17	2 - 3	N	ND (5.2)	5.2	ND (5.2)	ND (5.2)	ND (5.2)	15	16	34	10	5.6 J	18	ND (5.2)	37	ND (5.2)	9.7	ND (5.2)	23	32	28.2	177.3	25
AOC27																								
PA-13	01/27/16	0 - 1	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	90	ND (52)	ND (52)	52	ND (52)	56 J	ND (5.2)	ND (52)	ND (5.2)	23 J	43 J	23	241	67
AOC31																								
PA-08	11/09/15	0 - 1	N	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	ND (5.4)	59 J	94	230	ND (54)	87	120 J	ND (54)	140 J	ND (5.4)	ND (54)	ND (5.4)	57 J	110 J	57	840	150
	01/12/16	2 - 3	N	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (6)
	01/12/16	2 - 3	FD	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.2)	ND (52)	ND (52)	ND (52)	ND (52)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (52)	ND (5.2)	ND (5.2)	ND (5.2)	ND	ND	ND (58)
PA-OS1	04/06/11	0 - 0.5	N	ND (5)	ND (50)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (50)	ND (5)	ND	ND	ND (5.8)

TABLE 3-39c
Sample Results: Polycyclic Aromatic Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).

Results greater than or equal to the interim screening level are circled.

§	Sample removed during 2020 excavation
Y	debris sample
ψ	tar sample
*	Reporting limits greater than or equal to the interim screening level.
---	not analyzed
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
B(a)P	Benzo (a) pyrene
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
PAH	Polycyclic aromatic hydrocarbons
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

TABLE 3-39d

Sample Results: Semivolatile and Volatile Organic Compounds
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Interim Screening Level [1]:				2,870	73,000	320	24,000,000
Residential Regional Screening Levels [2]:				39,000	73,000	320	78,000,000
Residential DTSC-SL [3]:				NE	NE	NE	24,000,000
Ecological Comparison Values [4]:				NE	NE	NE	NE
Background [5]:				NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Dibenzofuran**	**Chloroform**	**Methyl acetate**
SWMU5							
SWMU5-1	12/08/15	0 - 1	N	ND (3,400) *	ND (3,400)	---	---
SWMU5-2	12/07/15	0 - 0.5	N	ND (3,400) *	ND (3,400)	---	---
SWMU6							
SWMU6-1	12/07/15	0 - 1	N	ND (3,400) *	ND (340)	---	---
AOC7							
AOC7-5	01/06/16	0 - 0.5	N	ND (350)	ND (350)	---	---
AOC13							
AOC13-13	01/09/16	0 - 0.5	N	ND (350)	ND (350)	---	---
AOC13-18	01/06/16	0 - 0.5	N	ND (340)	ND (340)	---	---
	01/06/16	0.5 - 1	FD	ND (340)	ND (340)	---	---
	01/06/16	2 - 3	N	ND (340)	ND (340)	ND (5.6)	---
AOC13-19	01/08/16	0 - 0.5	N	ND (350)	ND (350)	---	---
	01/08/16	2 - 3	N	ND (340)	ND (340)	ND (5.9)	---
AOC13-20	01/08/16	0 - 0.5	N	ND (350)	ND (350)	---	---
	01/08/16	2 - 3	N	ND (360)	ND (360)	ND (7)	---
AOC13-21	01/08/16	0 - 0.5	N	ND (3,400) *	ND (340)	---	---
	01/08/16	0 - 0.5	FD	ND (3,400) *	ND (340)	---	---
	01/08/16	2 - 3	N	ND (340)	ND (340)	ND (6.3)	---
AOC13-26	01/09/16	0 - 0.5	N	ND (350)	ND (350)	---	---
AOC13-30	01/07/16	0 - 0.5	N	ND (360)	ND (360)	---	---
	01/07/16	2 - 3	N	ND (350)	ND (350)	ND (6.4)	---
AOC13-31	01/07/16	0 - 0.5	N	ND (360)	ND (360)	---	---
	01/07/16	0 - 0.5	FD	ND (360)	ND (360)	---	---
	01/07/16	2 - 3	N	ND (350)	ND (350)	ND (5.9)	---
AOC13-32	12/04/15	0 - 0.5	N	ND (340)	ND (340)	---	---
AOC13-9	01/09/16	0 - 0.5	N	ND (350)	ND (350)	---	---
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (330)	ND (330)	---	---
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (330)	ND (330)	---	---
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (330)	ND (330)	---	---
	07/26/11	2 - 3	N	ND (330)	ND (330)	ND (9.3)	ND (8.6)
AOC13-Tar	04/26/17 Ψ	0	N	ND (3,300) J *	ND (3,300) J	---	---
BH-65	03/24/11	0 - 0.5	N	ND (340)	ND (340)	ND (4.5)	---
BH-66	03/23/11	0 - 0.5	N	ND (350)	ND (350)	ND (4.8)	---
	03/23/11	2 - 3	N	ND (350)	ND (350)	ND (4.8)	---
PA-02	11/09/15	0 - 1	N	ND (340)	ND (340)	---	---

TABLE 3-39d

Sample Results: Semivolatile and Volatile Organic Compounds
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Interim Screening Level [1]:				**2,870**	**73,000**	**320**	**24,000,000**
Residential Regional Screening Levels [2]:				**39,000**	**73,000**	**320**	**78,000,000**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**24,000,000**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Dibenzofuran**	**Chloroform**	**Methyl acetate**
PA-22	01/27/16	0 - 1	N	ND (340)	ND (340)	---	---
PA-OS3	12/10/14	0.5	N	ND (340)	ND (340)	---	---
	12/10/14	3	N	ND (350)	ND (350) J	---	---
PGE-LT-OS9	03/08/07	0.5	N	---	---	ND (5.2) J	---
	03/08/07	3	N	---	---	ND (5.2) J	---
PGE-UTOS1	03/08/07	0.5	N	---	---	ND (5.5) J	---
AOC18							
AOC18-1	01/12/16	0 - 0.5	N	ND (17,000) *	ND (1,700)	---	---
	01/12/16	0 - 0.5	FD	ND (17,000) *	ND (1,700)	---	---
AOC18-10	12/16/15	0 - 0.5	N	ND (3,400) *	ND (340)	---	---
AOC18-11	01/11/16	0 - 0.5	N	ND (350)	ND (350)	---	---
	01/11/16	2 - 3	N	ND (350)	ND (350)	ND (7)	---
AOC18-12	12/04/15	0 - 0.5	N	ND (340)	ND (340)	---	---
AOC18-2	01/12/16	0 - 0.5	N	ND (350)	ND (350)	---	---
AOC18-5	12/04/15	0 - 0.5	N	ND (340)	ND (340)	---	---
AOC18-6	12/04/15	0 - 0.5	N	ND (360)	ND (360)	---	---
AOC18-9	12/07/15	0 - 0.5	N	ND (34,000) *	ND (3,400)	---	---
	12/07/15	0 - 0.5	FD	ND (34,000) *	ND (3,400)	---	---
AOC20							
AOC20-OS11	12/21/16	0 - 0.5	N	---	---	ND (6.6)	---
AOC21							
AOC21-1	01/12/16	0 - 0.5	N	ND (3,500) *	ND (350)	---	---
AOC21-OS1	09/23/14	0 - 0.5	N	ND (3,300) *	ND (3,300)	---	---
AOC21-OS2	09/23/14	0 - 0.5	N	ND (3,300) *	ND (3,300)	---	---
	09/23/14	1 - 1.5	N	ND (3,300) *	ND (3,300)	ND (7.3)	---
AOC21-OS3	09/23/14	0 - 0.5	N	ND (3,400) *	ND (3,400)	---	---
AOC21-OS4	09/23/14	0 - 0.5	N	ND (3,300) *	ND (3,300)	---	---
AOC22							
AOC22-1	01/06/16	0 - 0.5	N	ND (350)	ND (350)	---	---
	01/06/16	0 - 0.5	FD	ND (350)	ND (350)	---	---
AOC22-2	01/06/16	0 - 0.5	N	ND (340)	ND (340)	---	---
	01/06/16	2 - 3	N	ND (370)	ND (370)	ND (6.9)	---
AOC22-3	01/17/17	0 - 0.5	N	ND (330)	ND (330)	---	---
AOC24							
AOC24-1	01/10/16	0 - 0.5	N	ND (340)	ND (340)	---	---

TABLE 3-39d
Sample Results: Semivolatile and Volatile Organic Compounds
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Interim Screening Level [1]:				**2,870**	**73,000**	**320**	**24,000,000**
Residential Regional Screening Levels [2]:				**39,000**	**73,000**	**320**	**78,000,000**
Residential DTSC-SL [3]:				**NE**	**NE**	**NE**	**24,000,000**
Ecological Comparison Values [4]:				**NE**	**NE**	**NE**	**NE**
Background [5]:				**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Dibenzofuran**	**Chloroform**	**Methyl acetate**
AOC24-2	01/11/16	0 - 0.5	N	ND (350)	ND (350)	---	---
	01/11/16	0 - 0.5	FD	ND (360)	ND (360)	---	---
AOC24-OS1	12/14/11	0 - 0.5	N	ND (340)	ND (340)	---	---
AOC24-OS2	12/14/11	0 - 0.5	N	ND (340)	ND (340)	---	---
Unit4.3-4.5							
Units4.3-1	12/07/15	0 - 1	N	ND (3,500) *	ND (350)	---	---
AOC4							
AOC4-37	02/04/17	0 - 0.5	N	ND (350)	ND (350)	ND (8.8)	ND (9.7) J
AOC4-42	02/04/17	0 - 0.5	N	ND (340)	ND (340)	ND (5.9)	28 J
AOC4-tar	02/06/17 Ψ	0	N	ND (34,000) *	130,000	---	---
BH-69	03/18/11	0 - 0.5	N	ND (350)	ND (350)	ND (5.4)	---
PA-17	01/27/16	0 - 1	N	ND (340)	ND (340)	---	---
AOC1							
PA-01	11/09/15	0 - 1	N	ND (340)	ND (340)	---	---
PA-03	11/09/15	0 - 1	N	2,000	ND (330)	---	---
PA-04	11/09/15	0 - 1	N	ND (340)	ND (340)	---	---
PA-14	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
PA-15	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
PA-16	01/27/16	0 - 1	N	ND (340)	ND (340)	---	---
AOC9							
PA-05	11/09/15	0 - 1	N	ND (340)	ND (340)	---	---
PA-23	01/27/16	0 - 1	N	ND (340)	ND (340)	---	---
AOC10							
PA-06	11/09/15	0 - 1	N	ND (340)	ND (340)	---	---
PA-18	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
PA-19	01/27/16	0 - 1	N	ND (3,800) *	ND (3,800)	---	---
PA-20	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
PA-21	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
AOC11							
PA-07	11/09/15	0 - 1	N	ND (3,300) *	ND (330)	---	---
PA-09	01/27/16	0 - 1	N	ND (330)	ND (330)	---	---
PA-10	01/27/16	0 - 1	N	ND (340)	ND (340)	---	---
PA-11	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
	01/25/17	2 - 3	N	ND (350)	ND (350)	ND (6)	ND (6)
PA-12	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
	01/25/17	2 - 3	N	ND (350)	ND (350)	ND (6.1)	ND (6.1)

TABLE 3-39d

Sample Results: Semivolatile and Volatile Organic Compounds
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
			Interim Screening Level [1]:	**2,870**	**73,000**	**320**	**24,000,000**
			Residential Regional Screening Levels [2]:	**39,000**	**73,000**	**320**	**78,000,000**
			Residential DTSC-SL [3]:	**NE**	**NE**	**NE**	**24,000,000**
			Ecological Comparison Values [4]:	**NE**	**NE**	**NE**	**NE**
			Background [5]:	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**bis (2-ethylhexyl) phthalate**	**Dibenzofuran**	**Chloroform**	**Methyl acetate**
AOC27							
PA-13	01/27/16	0 - 1	N	ND (3,400) *	ND (340)	---	---
AOC31							
PA-08	11/09/15	0 - 1	N	ND (3,600) *	ND (360)	---	---
	01/12/16	2 - 3	N	ND (340)	ND (340)	11	ND (7.1)
	01/12/16	2 - 3	FD	ND (340)	ND (340)	11	ND (6.5)
PA-OS1	04/06/11	0 - 0.5	N	ND (330)	ND (330)	---	---

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).

Results greater than the interim screening level are circled.

Only detected SVOCs and VOCs are presented.

§	Sample removed during 2020 excavation
ψ	tar sample
---	not analyzed
µg/kg	micrograms per kilogram
mV	milli volts
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
J	concentration or reporting limit estimated by laboratory or data validation
N	primary sample
NE	not established
ND	not detected at the listed reporting limit
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
SVOCs	semivolatile organic compounds

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008."Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil". May 28 and ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California". May.

TABLE 3-39e

Sample Results: Total Petroleum Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
SWMU5					
SWMU5-1	12/08/15	0 - 1	N	46	360
SWMU5-2	12/07/15	0 - 0.5	N	74	500
SWMU6					
SWMU6-1	12/07/15	0 - 1	N	42	320
AOC7					
AOC7-5	01/06/16	0 - 0.5	N	ND (11)	ND (11)
AOC8					
AOC8-1	01/07/16	0 - 0.5	N	19	160
AOC13					
AOC13-13	01/09/16	0 - 0.5	N	31	190
AOC13-18	01/06/16	0 - 0.5	N	ND (10)	24
	01/06/16	0.5 - 1	FD	ND (10)	24
	01/06/16	2 - 3	N	ND (10)	ND (10)
AOC13-19	01/08/16	0 - 0.5	N	ND (11)	12
	01/08/16	2 - 3	N	ND (10)	ND (10)
AOC13-20	01/08/16	0 - 0.5	N	ND (11)	77
	01/08/16	2 - 3	N	ND (11)	30
AOC13-21	01/08/16	0 - 0.5	N	ND (10)	81
	01/08/16	0 - 0.5	FD	ND (10)	80
	01/08/16	2 - 3	N	ND (10)	60
AOC13-26	01/09/16	0 - 0.5	N	ND (11)	120
AOC13-30	01/07/16	0 - 0.5	N	ND (11)	21
	01/07/16	2 - 3	N	ND (11)	44
AOC13-31	01/07/16	0 - 0.5	N	ND (11)	71
	01/07/16	0 - 0.5	FD	ND (11)	51
	01/07/16	2 - 3	N	14	72
AOC13-32	12/04/15	0 - 0.5	N	ND (10)	ND (10)
AOC13-9	01/09/16	0 - 0.5	N	ND (10)	52
AOC13-PITOS7	07/26/11	0 - 0.5	N	12	51
AOC13-PITOS8	07/26/11	0 - 0.5	N	11	31
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (10)	32
	07/26/11	2 - 3	N	ND (10)	33
BH-65	03/24/11	0 - 0.5	N	22	64
BH-66	03/23/11	0 - 0.5	N	ND (11)	ND (11)
	03/23/11	2 - 3	N	ND (11)	28
PA-02	11/09/15	0 - 1	N	33	220
PA-22	01/27/16	0 - 1	N	ND (10)	16

TABLE 3-39e
Sample Results: Total Petroleum Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	**230**	**11,000**
			Residential Regional Screening Levels [2] :	**NE**	**NE**
			Residential DTSC-SL [3] :	**NE**	**NE**
			RWQCB Environmental Screening Levels [4] :	**230**	**11,000**
			Ecological Comparison Values [5] :	**NE**	**NE**
			Background [6] :	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
PA-OS3	12/10/14	0.5	N	ND (10)	16
	12/10/14	3	N	ND (10)	ND (10)
PGE-LT-OS9	03/08/07	0.5	N	ND (10)	ND (10)
	03/08/07	3	N	ND (10)	ND (10)
PGE-UTOS1	03/08/07	0.5	N	13	70
SD-24	03/09/16	0 - 1	N	37	290
	03/09/16	2 - 3	N	ND (11)	28
SD-31	02/15/17	0 - 0.5	N	85	250
	02/15/17	0 - 0.5	FD	85	240
	02/15/17	1 - 2	N	30	150
	02/15/17	2 - 3	N	44	220
SD-07	12/17/15	0 - 1	N	ND (10)	ND (10)
	12/17/15	2 - 3	N	ND (10)	65
SD-OS30	07/18/17	0 - 0.5	N	ND (21)	90
SD-OS38	12/13/16	0 - 0.5	N	24	94
SD-OS39	11/29/16	0 - 0.5	N	35	170
	11/29/16	0 - 0.5	FD	38	170
	11/29/16	2.5 - 3	N	11	19
	11/29/16	2.5 - 3	FD	ND (10)	14
SD-OS40	12/06/16	0 - 0.5	N	10	20
SD-OS43	07/18/17	0 - 0.5	N	ND (37)	120
AOC18					
AOC18-1	01/12/16	0 - 0.5	N	87	500
	01/12/16	0 - 0.5	FD	88	460
AOC18-10	12/16/15	0 - 0.5	N	18	260
AOC18-11	01/11/16	0 - 0.5	N	ND (11)	35
	01/11/16	2 - 3	N	ND (11)	ND (11)
AOC18-12	12/04/15	0 - 0.5	N	100	570
AOC18-2	01/12/16	0 - 0.5	N	ND (11)	32
AOC18-5	12/04/15	0 - 0.5	N	11	34
AOC18-6	12/04/15	0 - 0.5	N	ND (11)	46
AOC18-9	12/07/15	0 - 0.5	N	120	640
	12/07/15	0 - 0.5	FD	110	640
AOC20					
AOC20-OS11	12/21/16	0 - 0.5	N	11 J	15 J
AOC21					
AOC21-1	01/12/16	0 - 0.5	N	19	150
AOC21-OS1	09/23/14	0 - 0.5	N	33	290

TABLE 3-39e
Sample Results: Total Petroleum Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
			Interim Screening Level [1] :	230	11,000
			Residential Regional Screening Levels [2] :	NE	NE
			Residential DTSC-SL [3] :	NE	NE
			RWQCB Environmental Screening Levels [4] :	230	11,000
			Ecological Comparison Values [5] :	NE	NE
			Background [6] :	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as diesel	TPH as motor oil
AOC21-OS2	09/23/14	0 - 0.5	N	ND (10) J	58
	09/23/14	1 - 1.5	N	ND (10)	48
AOC21-OS3	09/23/14	0 - 0.5	N	ND (10)	68
AOC21-OS4	09/23/14	0 - 0.5	N	ND (10)	44
AOC22					
AOC22-1	01/06/16	0 - 0.5	N	ND (11)	28
	01/06/16	0 - 0.5	FD	ND (11)	30
AOC22-2	01/06/16	0 - 0.5	N	ND (10)	46
	01/06/16	2 - 3	N	13	91
AOC24					
AOC24-1	01/10/16	0 - 0.5	N	120 J	640
AOC24-2	01/11/16	0 - 0.5	N	25	160
	01/11/16	0 - 0.5	FD	25	170
AOC24-OS1	12/14/11	0 - 0.5	N	77	430
AOC24-OS2	12/14/11	0 - 0.5	N	ND (10)	ND (10)
Unit4.3-4.5					
Units4.3-1	12/07/15	0 - 1	N	18	170
AOC4					
BH-69	03/18/11	0 - 0.5	N	83	150
PA-17	01/27/16	0 - 1	N	ND (10)	31
AOC1					
PA-01	11/09/15	0 - 1	N	ND (10)	13
PA-03	11/09/15	0 - 1	N	ND (10)	41
PA-04	11/09/15	0 - 1	N	ND (10)	16
PA-14	01/27/16	0 - 1	N	ND (10)	50
PA-15	01/27/16	0 - 1	N	12	110
PA-16	01/27/16	0 - 1	N	ND (10)	43
AOC9					
PA-05	11/09/15	0 - 1	N	ND (10)	ND (10)
PA-23	01/27/16	0 - 1	N	77	110
AOC10					
PA-06	11/09/15	0 - 1	N	ND (10)	21
PA-18	01/27/16	0 - 1	N	47	370
PA-19	01/27/16	0 - 1	N	130	580
PA-20	01/27/16	0 - 1	N	37	250
PA-21	01/27/16	0 - 1	N	35	190
AOC11					
PA-07	11/09/15	0 - 1	N	63	360 J

TABLE 3-39e

Sample Results: Total Petroleum Hydrocarbons
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)	
Interim Screening Level [1] :				**230**	**11,000**
Residential Regional Screening Levels [2] :				**NE**	**NE**
Residential DTSC-SL [3] :				**NE**	**NE**
RWQCB Environmental Screening Levels [4] :				**230**	**11,000**
Ecological Comparison Values [5] :				**NE**	**NE**
Background [6] :				**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as motor oil**
PA-09	01/27/16	0 - 1	N	12	220
PA-10	01/27/16	0 - 1	N	53	300
PA-11	01/27/16	0 - 1	N	28	240
PA-12	01/27/16	0 - 1	N	15	120
AOC27					
PA-13	01/27/16	0 - 1	N	ND (10)	34
AOC31					
PA-08	11/09/15	0 - 1	N	17	35
	01/12/16	2 - 3	N	ND (10)	ND (10)
	01/12/16	2 - 3	FD	ND (10)	ND (10)
PA-OS1	04/06/11	0 - 0.5	N	15	ND (10)

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).

Results greater than the interim screening level are circled.
Only detected TPHs are presented.

§	Sample removed during 2020 excavation
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
Water Board	Regional Water Quality Control Board

1 The interim screening level is the Regional Water Quality Control Board environmental screening level.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 Water Board. 2016. “San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels, Table S-1: Soil Direct Exposure Human Health Screening Levels, Interim Final.” February.

5 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil. May 28 and ARCADIS. 2009. Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil". July 1.

6 Background values have not been established for TPHs.

TABLE 3-39f

Sample Results: General Chemistry Parameters
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry	
				(pH Units)	(mg/kg)
Interim Screening Level [1]:				NE	NE
Residential Regional Screening Levels [2]:				NE	NE
Residential DTSC-SL [3]:				NE	NE
Ecological Comparison Values [4]:				NE	NE
Background [5]:				NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	pH	Total organic carbon
AOC7					
AOC7-5	01/06/16	0 - 0.5	N	9	---
AOC13					
AOC13-Debris	04/26/17 Y	0	N	7.1	---
BH-65	03/24/11	0 - 0.5	N	8.3	3,700
BH-66	03/23/11	0 - 0.5	N	8.2	2,200
	03/23/11	2 - 3	N	8.5	2,400
AOC16					
AOC2A	02/20/03	0.4	N	9.6	---
AOC2B	02/20/03	0.4	N	8.2	---
AOC18					
AOC18-1	01/12/16	0 - 0.5	N	8	---
	01/12/16	0 - 0.5	FD	8	---
AOC18-10	12/16/15	0 - 0.5	N	8.1	---
AOC18-11	01/11/16	0 - 0.5	N	9.4	---
	01/11/16	2 - 3	N	8.6	---
AOC18-12	12/04/15	0 - 0.5	N	8.8 J	---
AOC18-2	01/12/16	0 - 0.5	N	8.2	---
AOC18-5	12/04/15	0 - 0.5	N	9.4 J	---
AOC18-6	12/04/15	0 - 0.5	N	8.7 J	---
AOC18-9	12/07/15	0 - 0.5	N	8.6	---
	12/07/15	0 - 0.5	FD	8.4	---
AOC21					
AOC21-1	01/12/16	0 - 0.5	N	8.3	---
AOC21-OS1	09/23/14	0 - 0.5	N	8.2	---
AOC21-OS2	09/23/14	0 - 0.5	N	8	---
	09/23/14	1 - 1.5	N	8.4	---
AOC21-OS3	09/23/14	0 - 0.5	N	7.8	---
AOC21-OS4	09/23/14	0 - 0.5	N	7.8	---
AOC22					
AOC22-1	01/06/16	0 - 0.5	N	9.4	---
	01/06/16	0 - 0.5	FD	10	---
AOC22-2	01/06/16	0 - 0.5	N	8.3	---
	01/06/16	2 - 3	N	9	---
AOC24					
AOC24-1	01/10/16	0 - 0.5	N	8.4	---
AOC24-2	01/11/16	0 - 0.5	N	8.2	---
	01/11/16	0 - 0.5	FD	8.3	---

TABLE 3-39f

Sample Results: General Chemistry Parameters
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				General Chemistry	
				(pH Units)	(mg/kg)
			Interim Screening Level [1]:	NE	NE
			Residential Regional Screening Levels [2]:	NE	NE
			Residential DTSC-SL [3]:	NE	NE
			Ecological Comparison Values [4]:	NE	NE
			Background [5]:	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	pH	Total organic carbon
Unit4.3-4.5					
Units4.3-1	12/07/15	0 - 1	N	9.4	---
AOC4					
BH-69	03/18/11	0 - 0.5	N	9	7,700
PA-OS2	04/06/11	0 - 0.5	N	7.8	---
	04/06/11	0 - 0.5	FD	8.3	---
AOC31					
PA-OS1	04/06/11	0 - 0.5	N	7.8	---

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).

Results greater than or equal to the interim screening level are circled; however, if the interim screening level is equal to the background value, only results greater than the interim screening level are circled.

§	Sample removed during 2020 excavation
Y	debris sample
---	not analyzed
mg/kg	milligrams per kilogram
ft bgs	feet below ground surface
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
FD	field duplicate
N	primary sample
ND	not detected at the listed reporting limit
NE	not established
J	concentration or reporting limit estimated by laboratory or data validation
USEPA	United States Environmental Protection Agency

1 The selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

5 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-39g

Sample Results: Pesticides
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level [1] :				**2.1**	**2.1**	**2.1**	**39**	**86**	**440**	**300**	**300**	**5**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**300**	**440**	**130**	**70**	**320,000**	**490**
Residential Regional Screening Levels [2] :				**1,900**	**2,000**	**1,900**	**39**	**86**	**1,700**	**300**	**300**	**34**	**470,000**	**470,000**	**470,000**	**19,000**	**19,000**	**19,000**	**570**	**1,700**	**130**	**70**	**320,000**	**490**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**300**	**440**	**300**	**300**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**300**	**440**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**2.1**	**2.1**	**2.1**	**NE**	**NE**	**470**	**NE**	**NE**	**5**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**470**	**NE**	**NE**	**NE**	**NE**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**4,4-DDD**	**4,4-DDE**	**4,4-DDT**	**Aldrin**	**alpha-BHC**	**alpha-Chlordane**	**beta-BHC**	**delta-BHC**	**Dieldrin**	**Endo sulfan I**	**Endo sulfan II**	**Endosulfan sulfate**	**Endrin**	**Endrin aldehyde**	**Endrin ketone**	**gamma-BHC**	**gamma-Chlordane**	**Heptachlor**	**Heptachlor Epoxide**	**Methoxy chlor**	**Toxaphene**
AOC13																								
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (50) J
AOC22																								
AOC22-3	01/17/17	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	1.3	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (1)	2.8 J	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC24																								
AOC24-OS1	12/14/11	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	1.7	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	1.6 J	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC24-OS2	12/14/11	0 - 0.5	N	ND (2)	ND (2)	ND (2)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	---	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.1)	ND (51) J
AOC4																								
AOC4-37	02/04/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
AOC4-42	02/04/17	0 - 0.5	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J
AOC11																								
PA-11	01/25/17	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (2.1)	ND (1.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	ND (5.3)	ND (53) J
PA-12	01/25/17	2 - 3	N	ND (2.1) *	ND (2.1) *	ND (2.1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2.1)	ND (1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5.2)	ND (52) J

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).
Results greater than or equal to the interim screening level are circled.

*	Reporting limits greater than or equal to the interim screening level.
USEPA	United States Environmental Protection Agency
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
NE	not established
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
N	primary sample
FD	field duplicate
---	not analyzed
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison values for Additional Chemicals in Soil." July 1

5 Background values have not been established for pesticides.

TABLE 3-39h

Sample Results: Polychlorinated Biphenyls
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	4,100	200	170	230	230	240	240	240	240	204
			Residential Regional Screening Levels [2] :	4,100	200	170	230	230	240	240	240	240	230
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	204
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total PCBs
SWMU5													
SWMU5-2	12/07/15	0 - 0.5	N	17 R	34 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
AOC7													
AOC7-5	01/06/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13													
AOC13-13	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	98	ND (17)	---	---	123.5
AOC13-18	01/06/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	0.5 - 1	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/06/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-19	01/08/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-20	01/08/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	45	ND (18)	---	---	72
	01/08/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	47	ND (18)	---	---	74
AOC13-21	01/08/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/08/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-26	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC13-30	01/07/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	260	170	---	---	448
	01/07/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	110	53	---	---	181
AOC13-31	01/07/16	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/07/16	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/07/16	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	53	ND (17)	---	---	78.5
AOC13-32	12/04/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

TABLE 3-39h

Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				4,100	200	170	230	230	240	240	240	240	204
Residential Regional Screening Levels [2] :				4,100	200	170	230	230	240	240	240	240	230
Residential DTSC-SL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [4] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	204
Background [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC13-33	02/18/17 ϒ	0	N	ND (18)	ND (35)	ND (18)	ND (18) J	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	02/15/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	2,600 J	920	---	---	3,537
	02/15/17	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	1,100 J	710	---	---	1,827
	02/15/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	650	ND (17)	---	---	675.5
AOC13-9	01/09/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	250	ND (17)	---	---	275.5
AOC13-Debris	04/26/17 ϒ	0	N	ND (18) J	ND (35)	ND (18)	ND (18)	ND (18)	2,800	1,200	---	---	4,018
AOC13-PITOS7	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	140	ND (17)	ND (17)	165.5
AOC13-PITOS8	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	24	ND (17)	ND (17)	ND (17)	49.5
AOC13-PITOS9	07/26/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	07/26/11	2 - 3	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	36	ND (17)	ND (17)	ND (17)	61.5
AOC13-Tar	04/26/17 Ψ	0	N	ND (33) J	ND (67) J	ND (33) J	ND (33) J	ND (33) J	ND (33) J	ND (33) J	---	---	ND (66)
BH-65	03/24/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
BH-66	03/23/11	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	03/23/11	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
PA-02	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	110	ND (17)	---	---	135.5
PA-22	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-OS3	12/10/14	0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	230	ND (17)	---	---	255.5
	12/10/14	3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	22	ND (17)	---	---	47.5
SD-24	03/09/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	29	33	---	---	79
	03/09/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
SD-31	02/15/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	950 J	280 J	---	---	1,247
	02/15/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	1,100 J	400 J	---	---	1,517
	02/15/17	1 - 2	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	1,100	520	---	---	1,637
	02/15/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	64.5

TABLE 3-39h
Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
SD-07	12/17/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/17/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS30	07/18/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	310	140	---	---	467
SD-OS38	12/13/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	68	94	---	---	179
SD-OS39	11/29/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	95 J	ND (17) J	---	---	120.5
	11/29/16	0 - 0.5	FD	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	260 J	72 J	---	---	348
	11/29/16	2.5 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	11/29/16	2.5 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS40	12/06/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
SD-OS43	07/18/17	0 - 0.5	N	ND (16)	ND (33)	ND (16)	ND (16)	ND (16)	89	ND (16)	---	---	113
AOC16													
AOC16-grit	01/05/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17) J	ND (17) J	ND (17)	ND (17)	---	---	ND (34)
AOC18													
AOC18-1	01/12/16	0 - 0.5	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	67	ND (17) J	---	---	92.5
	01/12/16	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	36	ND (17)	---	---	61.5
AOC18-10	12/16/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC18-11	01/11/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
	01/11/16	2 - 3	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC18-12	12/04/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	18	ND (17)	---	---	43.5
AOC18-2	01/12/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	29	ND (18)	---	---	56
AOC18-5	12/04/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	69	120	---	---	206
AOC18-6	12/04/15	0 - 0.5	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	20	38	---	---	76
AOC18-9	12/07/15	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	12/07/15	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC20													

TABLE 3-39h

Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC20-OS11	12/21/16	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	33	ND (17)	---	---	58.5
AOC21													
AOC21-1	01/12/16	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	71	49	ND (18)	ND (18)	138
AOC21-OS1	09/23/14	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	60	ND (17)	---	---	85.5
AOC21-OS2	09/23/14	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	70	ND (17)	---	---	95.5
	09/23/14	1 - 1.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	64.5
AOC21-OS3	09/23/14	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	25	ND (17)	---	---	50.5
AOC21-OS4	09/23/14	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC22													
AOC22-1	01/06/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	31	ND (17)	---	---	56.5
	01/06/16	0 - 0.5	FD	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC22-2	01/06/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	76	ND (17)	---	---	101.5
	01/06/16	2 - 3	N	ND (18)	ND (37)	ND (18)	ND (18)	ND (18)	140	78	---	---	236
AOC22-3	01/17/17	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	35	ND (17)	---	---	60.5
AOC24													
AOC24-1	01/10/16	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC24-2	01/11/16	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	28	ND (17)	---	---	53.5
	01/11/16	0 - 0.5	FD	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	18	ND (18)	---	---	45
AOC24-OS1	12/14/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC24-OS2	12/14/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
Unit4.3-4.5													
Units4.3-1	12/07/15	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4													
AOC4-23	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	140	110	---	---	267
AOC4-24	12/06/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	1,600	3,700	2,300	---	---	7,609
	12/06/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	420	1,200	590	---	---	2,219

TABLE 3-39h

Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level [1] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
			Residential Regional Screening Levels [2] :	**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
			Residential DTSC-SL [3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
			Ecological Comparison Values [4] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
			Background [5] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-25	11/20/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	1,600	3,500	2,100	---	---	7,209
AOC4-26	11/20/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	85	ND (17)	---	---	110.5
	11/20/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	140	73	---	---	230
AOC4-27	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	4,400	2,700	---	---	7,117
	11/20/15	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	810	380	---	---	1,207
AOC4-28	11/20/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	2,900	6,600	4,300	---	---	13,809
AOC4-30	12/02/15	0 - 1	N	17 R	33 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
AOC4-32	12/02/15	0 - 1	N	17 R	33 R	17 R	17 R	17 R	17 R	17 R	---	---	34 R
AOC4-36	01/05/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	870	710	---	---	1,597
	01/05/17	0.9 - 1	N	ND (18)	ND (36)	ND (18)	ND (18) J	ND (18)	95	77	---	---	190
AOC4-37	02/04/17	0 - 0.5	N	ND (17)	ND (35)	ND (17)	ND (17) J	ND (17)	64	44	---	---	125
AOC4-38	02/02/17	0 - 0.5	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	160	140	---	---	318
	02/02/17	2 - 2.2	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	39	ND (17)	---	---	64.5
AOC4-39	01/05/17	0 - 0.5	N	ND (19)	ND (37)	ND (19)	ND (19) J	ND (19) J	620 J	480 J	---	---	1,119
	01/05/17	0 - 0.5	FD	ND (18)	ND (37)	ND (18)	ND (18) J	ND (18) J	1,600 J	1,300 J	---	---	2,918
AOC4-40	02/06/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	2,000	1,100 J	---	---	3,117
	02/06/17	0 - 0.5	FD	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	1,300	600 J	---	---	1,917
	02/06/17	0.5 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	1,700	1,500	---	---	3,218
AOC4-41	02/02/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	300	230	---	---	547
AOC4-42	02/04/17	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	41	41	---	---	99
	02/04/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17) J	ND (17)	ND (17)	ND (17)	---	---	ND (34)
AOC4-L01	05/14/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-L02	05/14/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	---	---	ND (36)
AOC4-L03	05/13/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	33	ND (18)	---	---	61
AOC4-M01	09/30/10	0	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)

TABLE 3-39h
Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level[1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels[2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background[5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-M02	09/30/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-M03	10/04/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-M04	10/05/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	44.5
AOC4-N01	09/30/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	160	34	ND (17)	ND (17)	224
AOC4-N02	09/30/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-N03	10/04/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	20	ND (18)	ND (18)	ND (18)	47
AOC4-N04	10/05/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-N05	10/05/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	33	ND (17)	ND (17)	ND (17)	58.5
AOC4-O02	10/04/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-O03	10/26/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/26/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-O04	10/26/10	0	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	110	22	ND (17)	ND (17)	149
AOC4-O05	10/27/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/27/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-O06	10/07/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P03	10/04/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	24	ND (17)	ND (17)	ND (17)	49.5
AOC4-P04	11/19/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P05	10/27/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/27/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P06	10/25/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-P07	10/22/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-P08	10/22/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-Q04	10/07/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	400	120	ND (17)	ND (17)	727
AOC4-Q05	10/07/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	290	88	ND (17)	ND (17)	405
	10/07/10	0	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	380	100	ND (17)	ND (17)	627

TABLE 3-39h
Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
AOC4-Q06	10/25/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-Q07	10/25/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-Q08	10/22/10	0	N	ND (18)	ND (35)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (18)	ND (36)
AOC4-R05	10/29/10	0	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	10/29/10	0	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	ND (17)	ND (17)	ND (34)
AOC4-R06	10/07/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	110	34	ND (17)	ND (17)	161
AOC4-R07	10/08/10	0	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	51	17	ND (17)	ND (17)	85
AOC4-tar	02/06/17 Ψ	0	N	ND (34)	ND (67)	ND (34)	ND (34)	ND (34)	ND (34)	ND (34)	---	---	ND (68)
BH-69	03/18/11	0 - 0.5	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	67	ND (17)	ND (17)	ND (17)	92.5
PA-17	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-OS2	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	04/06/11	0 - 0.5	FD	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	21	ND (17)	---	---	46.5
AOC1													
PA-01	11/09/15	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	260	ND (17)	---	---	285.5
PA-03	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	89	89	---	---	195
PA-04	11/09/15	0 - 1	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	17	ND (17) J	---	---	42.5
PA-14	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	120	ND (17)	---	---	145.5
PA-15	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	70	ND (17)	---	---	95.5
PA-16	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	300	ND (17)	---	---	325.5
AOC9													
PA-05	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	20	ND (17)	---	---	45.5
PA-23	01/27/16	0 - 1	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	76	95	---	---	188
AOC10													
PA-06	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
PA-18	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	450	ND (17)	---	---	475.5

TABLE 3-39h
Sample Results: Polychlorinated Biphenyls
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				Polychlorinated biphenyls (µg/kg)									
Interim Screening Level [1] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**204**
Residential Regional Screening Levels [2] :				**4,100**	**200**	**170**	**230**	**230**	**240**	**240**	**240**	**240**	**230**
Residential DTSC-SL [3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values [4] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**204**
Background [5] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
PA-19	01/27/16	0 - 1	N	ND (19) J	ND (38) J	ND (19) J	ND (19) J	ND (19) J	28 J	ND (19) J	---	---	56.5
PA-20	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	83	60	---	---	160
PA-21	01/27/16	0 - 1	N	ND (17) J	ND (34)	ND (17)	ND (17)	ND (17)	82	55 J	---	---	154
AOC11													
PA-07	11/09/15	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	100	ND (17)	---	---	125.5
PA-09	01/27/16	0 - 1	N	ND (17)	ND (33)	ND (17)	ND (17) J	ND (17)	51	ND (17)	---	---	76.5
PA-10	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	590	ND (17)	---	---	615.5
PA-11	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	530	ND (17)	---	---	555.5
	01/25/17	2 - 3	N	ND (17)	ND (35)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)
	01/25/17	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	19	ND (17)	---	---	44.5
PA-12	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	470 J	ND (17)	---	---	495.5
	01/25/17	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	27	ND (17)	---	---	52.5
AOC27													
PA-13	01/27/16	0 - 1	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	22	ND (17)	---	---	47.5
AOC31													
PA-08	11/09/15	0 - 1	N	ND (18)	ND (36)	ND (18)	ND (18)	ND (18)	38	ND (18)	---	---	65
	01/12/16	2 - 3	N	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
	01/12/16	2 - 3	FD	ND (17)	ND (34)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	ND (34)
PA-OS1	04/06/11	0 - 0.5	N	ND (17)	ND (33)	ND (17)	ND (17)	ND (17)	ND (17)	ND (17)	---	---	ND (34)

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).

Results greater than or equal to the interim screening level are circled.

§ Sample removed during 2020 excavation
Ƴ debris sample
ψ tar sample
* Reporting limits greater than or equal to the interim screening level.
USEPA United States Environmental Protection Agency
DTSC California Department of Toxic Substances Control

TABLE 3-39h

Sample Results: Polychlorinated Biphenyls
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DTSC-SL	DTSC Screening Level
NE	not established
µg/kg	micrograms per kilogram
ft bgs	feet below ground surface
N	primary sample
FD	field duplicate
---	not analyzed
ND	not detected at the listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation

[1] Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

[2] United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

[3] California Department of Toxic Substances Control (DTSC). 2018. Human Health Risk Assessment (HHRA) Note Number 3. January.

[4] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

[5] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

TABLE 3-39i
Sample Results: Dioxins and Furans
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level[1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels[2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL[3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values[4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background[5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
SWMU5																							
SWMU5-2	12/07/15	0 - 0.5	N	1,600 J	84 J	ND (5) J	ND (4.4) J	ND (7.1) J	32 J	ND (3.3) J	9.8 J	ND (2.3) J	3.5 J	2.4 J	ND (190) J	4.4 J	ND (0.65) J	ND (1.7) J	19,000 J	150 J	25	42	42
AOC13																							
AOC13-13	01/09/16	0 - 0.5	N	360 J	42 J	ND (2.8) J	ND (1.3) J	ND (0.77) J	11 J	ND (3.2) J	4.9 J	ND (0.89) J	ND (0.79) J	ND (0.77) J	ND (50) J	ND (0.8) J	ND (0.3) J	ND (0.37) J	3,500 J	82 J	5.7	10	10
AOC13-18	01/06/16	0 - 0.5	N	460 J	33 J	ND (2.2) J	2.9 J	ND (1) J	9.1 J	ND (0.92) J	ND (5.1) J	ND (1.2) J	ND (1.5) J	ND (1) J	ND (46) J	ND (0.34) J	ND (0.12) J	ND (0.67) J	5,100 J	89 J	5.6	11	11
AOC13-19	01/08/16	0 - 0.5	N	120 J	9.3 J	ND (0.55) J	ND (1.4) J	ND (0.22) J	4 J	ND (0.38) J	ND (0.56) J	ND (0.25) J	ND (0.89) J	ND (0.2) J	ND (17) J	ND (0.48) J	ND (0.19) J	1.4 J	1,100 J	21 J	3.5	3.8	3.8
	01/08/16	2 - 3	N	12 J	ND (1.5) J	ND (0.18) J	ND (0.26) J	ND (0.38) J	ND (0.25) J	ND (0.34) J	ND (0.25) J	ND (0.44) J	ND (0.29) J	ND (0.21) J	ND (2.1) J	ND (0.21) J	ND (0.13) J	ND (0.2) J	110 J	ND (2.9) J	0.64	0.62	0.62
AOC13-30	01/07/16	0 - 0.5	N	14,000 J	1,100 J	93 J	40 J	62 J	290 J	27 J	76 J	22 J	20 J	11 J	ND (3,000) J	21 J	ND (2.7) J	ND (3.1) J	130,000 J	3,700 J	260	420	420
	01/07/16	2 - 3	N	380 J	44 J	3.7 J	ND (1.8) J	ND (2.2) J	11 J	2.7 J	3.2 J	ND (0.44) J	1.2 J	ND (0.66) J	ND (77) J	ND (0.74) J	ND (0.16) J	ND (0.17) J	4,400 J	95 J	7.8	13	13
AOC13-31	01/07/16	0 - 0.5	N	4,300 J	220 J	18 J	14 J	22 J	81 J	ND (6.2) J	27 J	9.5 J	6.3 J	ND (3.7) J	ND (580) J	9.8 J	ND (0.75) J	3.9 J	43,000 J	520 J	68	110	110
	01/07/16	2 - 3	N	3,600 J	270 J	18 J	19 J	18 J	87 J	ND (9.8) J	33 J	5.8 J	12 J	6.8 J	ND (510) J	ND (4.9) J	ND (1.7) J	ND (0.13) J	47,000 J	620 J	61	110	110
AOC13-33	02/15/17	0 - 0.5	N	62,000	4,900	460	380	420	1,900	260	760	96	320	69	ND (11,000)	120	69	19	680,000 J	14,000	1,500	2,200	2,200
	02/15/17	0 - 0.5	FD	46,000 J	4,100	310	380	320	1,600	300	720	92	340	65	ND (7,500)	130	66	ND (22)	380,000 J	9,700	1,200	1,800	1,800
	02/15/17	2 - 3	N	18,000	1,900	150 J	88	110 J	400	75	160 J	24	48	ND (14)	ND (2,500)	ND (26)	ND (0.3)	15	140,000	5,700	300	510	510
AOC13-9	01/09/16	0 - 0.5	N	3,100 J	260 J	22 J	10 J	16 J	68 J	ND (5) J	16 J	7 J	ND (4.4) J	ND (1.6) J	ND (430) J	4.9 J	ND (0.8) J	ND (0.62) J	32,000 J	710 J	44	81	81
AOC13-Debris	04/26/17 Y	0	N	1,100,000 J	110,000 J	9,600 J	3,400 J	7,600 J	45,000 J	ND (1,800) J	5,600 J	3,600 J	1,300 J	1,600 J	ND (700,000) J	3,000 J	ND (140) J*	730 J	550,000 J	250,000 J	45,000	56,000	56,000
AOC13-Tar	04/26/17 Ψ	0	N	ND (520) J	ND (480) J	ND (240) J	ND (690) J	ND (760) J	ND (690) J	ND (710) J	ND (670) J	ND (840) J	ND (1,200) J*	ND (790) J	ND (770) J	ND (820) J	ND (520) J*	ND (990) J	ND (5,000) J	ND (1,200) J	ND (2,000) *	ND (1,300) *	ND (1,300) *
BH-65	03/24/11	0 - 0.5	N	1,400	ND (110)	6.3 J	ND (3.3)	5.8 J	41	ND (3.6)	15	ND (2.4)	ND (1.6)	ND (1.5)	4.4 J	2.6 J	0.54 J	0.95 J	11,000	230	11	27	27
BH-66	03/23/11	0 - 0.5	N	39	ND (5.3)	ND (0.42)	0.31 J	ND (0.29)	ND (1.2)	ND (0.28)	ND (0.41)	ND (0.1)	ND (0.21)	ND (0.076)	0.4 J	ND (0.19)	ND (0.055)	0.19 J	530	12 J	0.66	0.95	0.95
SD-24	03/09/16	0 - 1	N	220 J	ND (17) J	ND (1.3) J	ND (3.4) J	ND (1.5) J	ND (7.6) J	ND (1.3) J	ND (5.8) J	ND (1.8) J	ND (2.1) J	ND (1.1) J	ND (25) J	ND (1.8) J	ND (0.32) J	ND (1.5) J	2,100 J	39 J	5.3	6.8	6.8
SD-31	02/15/17	0 - 0.5	N	12,000	1,000	86	62	43	250	31	110	13	37	ND (7.5)	ND (1,800)	15	ND (4.6)	ND (8.3)	120,000	3,200	210	350	350
AOC16																							
AOC16-4	01/11/16	0 - 1	N	29 J	2.8 J	ND (0.44) J	ND (0.77) J	ND (0.41) J	ND (1.1) J	ND (0.71) J	ND (0.43) J	ND (0.2) J	ND (0.85) J	0.41 J	ND (3) J	0.64 J	ND (0.24) J	1.1 J	220 J	ND (3.3) J	2.7	1.6	1.6
AOC18																							
AOC18-1	01/12/16	0 - 0.5	N	7,500 J	330 J	16 J	18 J	30 J	110 J	ND (9.6) J	33 J	9.1 J	ND (8.4) J*	4.8 J	ND (480) J	10 J	ND (0.22) J	2.7 J	90,000 J	600 J	71	160	160
AOC18-12	12/04/15	0 - 0.5	N	940 J	110 J	6.2 J	ND (7) J	ND (0.82) J	26 J	ND (5.7) J	13 J	ND (0.94) J	ND (4.5) J	ND (0.97) J	ND (120) J	1.9 J	ND (0.28) J	ND (0.33) J	8,800 J	190 J	16	27	27
AOC18-5	12/04/15	0 - 0.5	N	870 J	100 J	8.1 J	ND (5.1) J	8.2 J	23 J	7.9 J	9.6 J	ND (0.55) J	ND (3.2) J	6.3 J	ND (130) J	4.9 J	ND (0.59) J	3.5 J	8,700 J	190 J	23	28	28
AOC18-9	12/07/15	0 - 0.5	N	1,100 J	54 J	ND (1.8) J	ND (3) J	ND (3.6) J	19 J	ND (0.98) J	8 J	ND (1.2) J	ND (2) J	ND (1.5) J	ND (100) J	2.2 J	ND (0.29) J	ND (1.6) J	13,000 J	100 J	14	26	26
AOC22																							
AOC22-2	01/06/16	0 - 0.5	N	1,300 J	80 J	5.4 J	10 J	4.1 J	24 J	ND (3.1) J	12 J	ND (1.2) J	3.3 J	1.8 J	ND (93) J	1.8 J	ND (0.44) J	1.1 J	11,000 J	260 J	17	31	31
	01/06/16	2 - 3	N	1,100 J	82 J	ND (5.3) J	10 J	7.8 J	27 J	7 J	15 J	1.8 J	ND (4.1) J	4.7 J	ND (100) J	3.1 J	ND (0.12) J	3.4 J	12,000 J	160 J	21	31	31
AOC22-3	01/17/17	0 - 0.5	N	5,900	120	ND (4.3)	810	ND (22)	120	ND (20)	49	ND (25)	ND (1.4)	ND (0.79)	ND (460)	ND (6.8)	ND (1.1)	ND (3.8)	52,000	210	92	200	200
AOC24																							
AOC24-2	01/11/16	0 - 0.5	N	240 J	24 J	ND (1.1) J	ND (0.81) J	ND (0.91) J	ND (0.79) J	ND (0.61) J	ND (0.77) J	ND (0.78) J	ND (1.3) J	ND (0.69) J	ND (31) J	ND (0.68) J	ND (0.17) J	ND (0.49) J	2,800 J	62 J	3.9	6.2	6.2

TABLE 3-39i
Sample Results: Dioxins and Furans
Offsite Migration Assessment
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PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
			Interim Screening Level [1] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
			Residential Regional Screening Levels [2] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC4																							
AOC4-23	12/06/15	0 - 1	N	88	12 J	ND (1.8)	ND (1.8)	ND (2.8)	3.5 J	ND (2.3)	ND (2.2)	1 J	1.2 J	2.1 J	ND (7.1)	ND (2.5)	ND (0.43)	ND (1.8)	820	20 J	5	4.5	4.5
AOC4-24	12/06/15	0 - 1	N	4,600	490	41	30	52	99	41	55	7 J	ND (6.8) *	30	ND (460)	43	ND (1.4)	30	45,000	1,400	140	140	140
	12/06/15	2 - 3	N	1,500	150	14	10 J	17	33	16	18	3.2 J	5.1 J	13	ND (180)	12 J	ND (0.62)	8.4	13,000	430	47	50	50
AOC4-25	11/20/15	0 - 1	N	270	81	12 J	4.4 J	17	10 J	9.2 J	7.2 J	ND (1.7)	ND (38) *	ND (6.6)	ND (29)	25	ND (1.5)	14	2,000	140	66	39	39
AOC4-26	11/20/15	0 - 1	N	62	14	ND (1.3)	ND (0.67)	ND (2)	2.5 J	1.8 J	ND (1.6)	ND (0.51)	ND (1.3)	ND (0.38)	ND (5)	ND (2.3)	ND (0.68)	2.3 J	450	18 J	5.4	3.4	3.4
	11/20/15	2 - 3	N	ND (13)	3.2 J	ND (0.34)	ND (0.42)	0.6 J	ND (0.35)	ND (0.46)	ND (0.33)	ND (0.36)	ND (3.2)	ND (0.35)	ND (1.2)	ND (0.9)	ND (0.25)	0.67 J	87	5.2 J	3.1	2.3	2.3
AOC4-27	11/20/15	0 - 1	N	810	180	21	7.7 J	45	24	39	12 J	ND (4.4)	ND (64) *	24	ND (16)	100	ND (3.1)	38	6,500	310	190	94	94
	11/20/15	2 - 3	N	150	45	ND (5.1)	ND (0.88)	9.4 J	4.5 J	ND (7.4)	ND (0.83)	ND (0.98)	ND (58) *	ND (4.3)	ND (18)	19	ND (1.6)	10	1,300	69	62	42	42
AOC4-28	11/20/15	0 - 1	N	1,400	260	33	19	52	45	ND (30)	30	ND (11)	ND (7.1) *	ND (3.2)	25	37	ND (3.5)	ND (13)	9,400	370	68	56	56
AOC4-29	12/02/15	0 - 1	N	26	ND (1.8)	ND (0.17)	ND (0.27)	ND (0.2)	0.95 J	ND (0.19)	0.84 J	ND (0.23)	ND (0.11)	ND (0.12)	ND (1.1)	ND (0.13)	ND (0.058)	1 J	210	3.7 J	1.4	0.82	0.82
AOC4-30	12/02/15	0 - 1	N	1,200	100	8.1 J	14	11 J	38	9.6 J	23	ND (0.73)	ND (5.4) *	4.3 J	ND (71)	13	ND (0.55)	7.7	8,200	150	36	37	37
AOC4-31	12/02/15	0 - 1	N	110	10 J	ND (0.92)	ND (0.62)	1.2 J	2.9 J	ND (0.56)	ND (1.2)	ND (0.33)	ND (0.5)	ND (0.36)	ND (14)	ND (0.91)	ND (0.076)	0.85 J	970	23 J	2.9	3.3	3.3
AOC4-32	12/02/15	0 - 1	N	2,900	280	ND (8.5)	14	ND (1.8)	79	9.3 J	27	6.4 J	ND (7.6) *	ND (6.2)	ND (640)	ND (6.7)	0.9 J	3.4 J	26,000	750	58	92	92
AOC4-36	01/05/17	0 - 0.5	N	340	39	6.4 J	6 J	5.3 J	12 J	6.8 J	ND (8.5)	ND (0.43)	ND (7.4) *	56	ND (34)	5.6 J	ND (0.8)	13	3,000	90	33	19	19
	01/05/17	0.9 - 1	N	53 J	6.9 J	ND (1.6)	ND (0.67)	ND (0.76)	ND (2)	11 J	ND (2.3)	ND (0.87)	ND (3.2)	76	ND (2.3)	ND (1.7)	ND (0.38)	ND (0.5)	390	ND (12)	12	6.6	6.6
AOC4-37	02/04/17	0 - 0.5	N	43	3.7 J	ND (0.35)	ND (0.58)	ND (0.45)	1.9 J	4.9 J	1.3 J	ND (0.52)	ND (0.5)	ND (0.83)	ND (3.3)	ND (0.17)	ND (0.24)	ND (0.42)	330	5.6 J	1.7	2.1	2.1
AOC4-38	02/02/17	0 - 0.5	N	930	100	8.6 J	5.2 J	3.7 J	22	ND (2.4)	9.6 J	1.3 J	ND (2.9)	ND (1.3)	ND (200)	ND (1.9)	ND (0.08)	1.3 J	9,700	270	19	30	30
	02/02/17	2 - 2.2	N	560	92	6.7 J	1.7 J	3.6 J	15	ND (2.6)	3.8 J	ND (0.57)	ND (0.82)	1.8 J	ND (140)	ND (0.95)	ND (0.11)	ND (0.21)	6,300	230	12	19	19
AOC4-39	01/05/17	0 - 0.5	N	420 J	76	10 J	ND (33)	14	ND (28)	14	ND (29)	ND (3.1)	ND (900) *	52	ND (64)	ND (3)	ND (0.4)	ND (3.4)	2,800 J	120 J	470	470	470
	01/05/17	0 - 0.5	FD	890 J	79	ND (9.5)	13	14	24	ND (17)	19	ND (5.6)	ND (630) *	ND (2.5)	ND (80)	13	ND (0.97)	ND (7.2)	8,400 J	230 J	340	340	340
AOC4-40	02/06/17	0 - 0.5	N	360	140 J	22	5.2 J	32	11 J	21	9.1 J	6.8 J	ND (2.5)	26	ND (42)	37	ND (0.67)	38	3,100	240 J	91	34	34
	02/06/17	0 - 0.5	FD	390	86 J	10 J	6 J	35	13	29	10 J	3.8 J	ND (3.5)	26	ND (37)	43	ND (0.15)	45	3,000	110 J	100	37	37
	02/06/17	0.5 - 1	N	210	39	ND (4.2)	2.9 J	10 J	7 J	7.3 J	5.4 J	ND (1.3)	ND (1.8)	8.1 J	ND (22)	20	ND (0.15)	16	1,700	57	42	16	16
AOC4-41	02/02/17	0 - 0.5	N	1,400	ND (230)	ND (12)	ND (9.4)	ND (9.7)	ND (9.4)	ND (9.2)	ND (9.2)	ND (11)	ND (52) *	ND (7.9)	ND (9.9)	ND (8.2)	ND (6.4) *	ND (5.1)	13,000	180	43	53	53
AOC4-42	02/04/17	0 - 0.5	N	710	50	ND (3.7)	ND (4.5)	4.2 J	18	ND (2.8)	11 J	ND (1.5)	ND (3.7)	ND (1.2)	ND (69)	ND (1.9)	ND (0.18)	1.5 J	6,400	96	12	19	19
	02/04/17	2 - 3	N	61	5.2 J	ND (0.37)	ND (0.27)	ND (0.29)	ND (1.7)	ND (0.28)	ND (0.86)	ND (0.34)	ND (0.16)	ND (0.22)	ND (6.7)	ND (0.23)	ND (0.17)	ND (0.36)	560	ND (9.1)	1.1	1.6	1.6
AOC4-L01	05/14/10	0	N	44	ND (5.6)	ND (2.7)	1.3 J	ND (1.1)	ND (2.1)	ND (1.3)	ND (1.9)	ND (2.6)	ND (0.16)	1 J	1 J	1.2 J	1.3 J	1.7 J	430	15 J	5	3.2	3.2
AOC4-L02	05/14/10	0	N	25	4.4 J	2.9 J	1.3 J	1.2 J	ND (2)	ND (0.87)	2.1 J	ND (3.2)	ND (0.17)	1.2 J	1.4 J	1.3 J	1.4 J	ND (1.6)	210	10 J	4.6	3.3	3.3
AOC4-L03	05/13/10	0	N	81	8 J	ND (1.4)	1.6 J	1.4 J	3.6 J	ND (0.99)	3.5 J	ND (1.1)	ND (0.44)	1 J	ND (0.6)	ND (0.79)	ND (0.18)	ND (1)	780	17 J	2.3	2.8	2.8
AOC4-M01	09/30/10	0	N	15	2.7 J	ND (0.15)	ND (0.18)	ND (0.32)	ND (0.73)	ND (0.38)	ND (0.17)	ND (0.19)	ND (0.17)	ND (0.22)	ND (3.5)	ND (0.085)	ND (0.11)	ND (0.38)	140	9.8 J	0.68	0.67	0.67
AOC4-M02	09/30/10	0	N	95	ND (1.2)	ND (1.8)	ND (0.58)	ND (0.57)	ND (0.6)	ND (0.51)	ND (0.57)	ND (0.68)	ND (0.39)	ND (0.4)	ND (0.6)	ND (0.38)	ND (0.26)	ND (0.39)	960	ND (1.9)	1.1	1.9	1.9
AOC4-M03	10/04/10	0	N	12 J	ND (1)	ND (0.32)	ND (0.37)	ND (0.18)	ND (0.38)	ND (0.16)	ND (0.36)	ND (0.21)	ND (0.31)	ND (0.17)	ND (1.3)	ND (0.17)	ND (0.095)	ND (0.26)	120	ND (2.8)	0.58	0.55	0.55

TABLE 3-39i
Sample Results: Dioxins and Furans
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
Interim Screening Level [1]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
Residential Regional Screening Levels [2]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
Residential DTSC-SL [3]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
Ecological Comparison Values [4]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
Background [5]:				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	Date	Depth (ft bgs)	Sample Type	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF	TEQ Avian	TEQ Human	TEQ Mammals
AOC4-M04	10/05/10	0	N	45	4.1 J	0.6 J	ND (0.47)	0.82 J	2.8 J	ND (0.29)	1.6 J	ND (0.39)	ND (0.49)	ND (0.38)	ND (4.3)	ND (0.36)	ND (0.17)	ND (0.38)	450	ND (6.4)	1.4	1.8	1.8
AOC4-N01	09/30/10	0	N	510	37	3.1 J	5.1 J	ND (3.3)	17	2.6 J	10 J	ND (0.73)	ND (0.72)	ND (0.56)	ND (37)	1.5 J	ND (0.23)	ND (1.3)	4,500	65	7.8	13	13
AOC4-N02	09/30/10	0	N	5.3 J	ND (0.14)	ND (0.23)	ND (0.23)	ND (0.15)	ND (0.23)	ND (0.14)	ND (0.22)	ND (0.18)	ND (0.24)	ND (0.089)	ND (1.3)	ND (0.086)	ND (0.18)	ND (0.12)	50	ND (1.3)	0.44	0.42	0.42
AOC4-N03	10/04/10	0	N	140	ND (9.1)	ND (1.3)	ND (0.78)	ND (1.2)	5.1 J	ND (0.58)	ND (1.7)	ND (0.34)	ND (0.43)	ND (0.35)	ND (23)	ND (0.58)	ND (0.2)	ND (0.55)	1,400	31	2.6	4.2	4.2
AOC4-N04	10/05/10	0	N	230	15	ND (0.58)	ND (0.64)	ND (1.8)	8.3 J	ND (0.89)	ND (0.62)	ND (0.59)	ND (0.48)	ND (0.28)	ND (0.52)	ND (0.78)	ND (0.39)	ND (0.44)	2,700	43	2	4.9	4.9
AOC4-N05	10/05/10	0	N	140	15	ND (0.32)	ND (1)	ND (1.4)	4.6 J	ND (0.47)	2.1 J	ND (0.48)	ND (0.5)	ND (0.32)	ND (0.37)	ND (0.31)	ND (0.42)	0.54 J	1,700	40	2.1	3.5	3.5
AOC4-O02	10/04/10	0	N	67	7.1 J	ND (0.95)	ND (1)	ND (0.68)	ND (2.4)	ND (0.6)	ND (1.1)	ND (0.81)	ND (0.39)	ND (0.46)	ND (6.6)	ND (0.45)	ND (0.33)	ND (0.34)	630	11 J	1.5	2	2
AOC4-O03	10/26/10	0	N	38	5.3 J	ND (1.2)	ND (2.4)	ND (1.7)	ND (2.8)	ND (1.6)	ND (2.8)	ND (2)	ND (1.1)	ND (0.58)	ND (1.2)	ND (1.1)	ND (0.82)	ND (0.72)	370	ND (11)	2.6	2.4	2.4
	10/26/10	0	FD	33	ND (3.5)	2 J	ND (1.6)	ND (1.7)	ND (2.2)	ND (1.3)	ND (1.6)	ND (1.3)	ND (0.67)	ND (0.63)	ND (0.66)	ND (0.94)	ND (0.59)	ND (0.36)	330	ND (9.9)	1.8	1.8	1.8
AOC4-O04	10/26/10	0	N	480	49	ND (4.2)	ND (5.1)	4.2 J	16	ND (2.9)	9.7 J	ND (0.99)	ND (0.62)	ND (0.63)	ND (2.1)	ND (2.1)	0.77 J	1.4 J	4,200	100	7	12	12
AOC4-O05	10/27/10	0	N	5 J	2.1 J	ND (1.1)	ND (0.34)	ND (0.63)	ND (0.58)	ND (0.34)	ND (0.61)	1.2 J	ND (0.29)	ND (0.41)	ND (0.28)	ND (0.12)	ND (0.23)	ND (0.65)	35	2.5 J	0.93	0.66	0.66
	10/27/10	0	FD	4.3 J	1.9 J	ND (1.1)	ND (0.43)	ND (0.36)	0.63 J	ND (0.32)	ND (0.95)	ND (0.61)	ND (0.36)	ND (0.41)	ND (0.1)	ND (0.31)	ND (0.14)	ND (0.51)	35	2.5 J	0.85	0.61	0.61
AOC4-O06	10/07/10	0	N	680	21	2.6 J	6.4 J	2.7 J	17	1.8 J	11 J	2.2 J	ND (0.23)	ND (0.35)	ND (37)	ND (0.34)	0.17 J	0.41 J	5,900	41	6.5	15	15
AOC4-P03	10/04/10	0	N	170	11 J	ND (0.73)	ND (1)	ND (1.4)	5 J	1.6 J	2.8 J	ND (0.37)	ND (0.44)	ND (0.46)	ND (14)	ND (0.44)	ND (0.22)	ND (0.48)	1,900	27	2.6	4.6	4.6
AOC4-P04	11/19/10	0	N	4.4 J	ND (2.5)	1.5 J	0.82 J	ND (0.87)	ND (1.1)	ND (1.1)	ND (1.4)	1.3 J	0.91 J	1.2 J	ND (0.75)	ND (0.5)	ND (0.36)	ND (0.95)	ND (23)	3.2 J	2.4	1.8	1.8
AOC4-P05	10/27/10	0	N	32	ND (0.092)	0.93 J	0.93 J	ND (0.87)	1.5 J	0.74 J	ND (1.4)	0.92 J	ND (0.24)	ND (0.52)	ND (0.42)	ND (0.26)	ND (0.16)	ND (0.56)	270	6.5 J	1.1	1.2	1.2
	10/27/10	0	FD	43	ND (0.21)	ND (2.2)	ND (1)	ND (1.4)	ND (1.7)	1.1 J	ND (1.4)	1.7 J	ND (0.41)	ND (0.81)	0.69 J	ND (0.43)	ND (0.091)	ND (0.91)	320	9.2 J	1.6	1.5	1.5
AOC4-P06	10/25/10	0	N	25	3 J	ND (0.55)	ND (1.9)	ND (1.1)	ND (1.4)	ND (1.2)	ND (1.2)	ND (1.4)	1.7 J	1.6 J	ND (0.65)	ND (1)	ND (0.45)	0.53 J	190	5.8 J	3.5	3	3
AOC4-P07	10/22/10	0	N	390	ND (19)	4.7 J	62	ND (0.98)	17	ND (5.2)	ND (6.9)	ND (1.5)	5.6 J	ND (0.97)	ND (93)	ND (1.7)	ND (3.9)	ND (1.1)	3,900	57	19	26	26
AOC4-P08	10/22/10	0	N	37	3.6 J	ND (1.3)	ND (1.5)	ND (0.66)	ND (0.98)	ND (0.58)	ND (1.1)	ND (1)	ND (1.3)	ND (1.1)	ND (0.71)	1.3 J	ND (0.53)	0.7 J	560	ND (2.5)	3.4	2.3	2.3
AOC4-Q04	10/07/10	0	N	2,000	140	12 J	25	14	64	9.3 J	42	ND (0.35)	ND (0.48)	4.5 J	ND (140)	11 J	ND (0.6)	8.9	15,000	280	41	53	53
AOC4-Q05	10/07/10	0	N	2,400	150	14	24	15	66	8.1 J	36	ND (0.43)	ND (0.56)	3.4 J	ND (210)	7.8 J	ND (0.59)	3.9 J	12,000	380	36	58	58
	10/07/10	0	FD	2,300	150	ND (12)	21	15	66	ND (6.8)	36	ND (0.27)	ND (0.53)	3.9 J	ND (200)	ND (6.3)	ND (0.82)	4 J	14,000	370	31	55	55
AOC4-Q06	10/25/10	0	N	15	2.6 J	ND (2.1)	ND (1.1)	1.5 J	ND (2)	ND (2)	ND (2.2)	ND (0.73)	ND (1)	0.94 J	2 J	1.3 J	0.71 J	0.67 J	89	ND (0.77)	4	2.7	2.7
AOC4-Q07	10/25/10	0	N	970	36	ND (3.5)	12 J	5.1 J	34	ND (3.6)	19	ND (0.94)	ND (3.4)	ND (2)	ND (53)	ND (1.7)	ND (0.96)	1.7 J	5,700	ND (53)	13	24	24
AOC4-Q08	10/22/10	0	N	69	6.5 J	ND (1.8)	ND (1.7)	ND (1.8)	ND (4.1)	ND (1.3)	ND (1.8)	ND (1.5)	ND (0.3)	ND (1.8)	ND (1.6)	ND (1.2)	ND (1.1)	0.95 J	760	ND (13)	3	2.7	2.7
AOC4-R05	10/29/10	0	N	20	ND (2.6)	ND (1.8)	1.5 J	ND (3.6)	ND (2.5)	ND (1.9)	2.9 J	ND (3)	ND (2.8)	ND (6.5)	1.3 J	ND (3.3)	ND (1.6)	ND (2)	160	9.8 J	6.2	4.3	4.3
	10/29/10	0	FD	31	13	ND (7.2)	3.1 J	ND (0.26)	4.8 J	3.6 J	ND (6.8)	7.2 J	2.5 J	3.3 J	2.3 J	ND (1.1)	ND (0.25)	ND (0.68)	180	27	5.9	5.9	5.9
AOC4-R06	10/07/10	0	N	710 J	41	4.2 J	13	5.3 J	24	4 J	19 J	1.1 J	ND (0.43)	1.5 J	ND (29)	2.3 J	ND (0.79)	2.1 J	5,200	80	12	19	19
AOC4-R07	10/08/10	0	N	1,600	67	5.2 J	24	6.8 J	55	ND (6.9)	39	2.3 J	ND (0.46)	3 J	ND (44)	ND (2.7)	1.2 J	2 J	11,000	90	18	37	37
AOC4-tar	02/06/17 Ψ	0	N	130 SJ	15 SJ	8.2 R	6.7 R	8.7 SJ	11 R	8.9 R	15 R	9.6 R	12 R	15 R	14 R	1.8 R	3.2 R	2.2 R	6,300 SJ	200 R	15 SJR	16 SJR	16 SJR
BH-69	03/18/11	0 - 0.5	N	1,900	ND (300)	12 J	16	12 J	55	ND (17)	27	2.7 J	6.6 J	ND (0.12)	12 J	3.8 J	ND (0.78)	2.4 J	16,000	270	26	47	47
PA-17	01/27/16	0 - 1	N	330 J	11 J	ND (0.79) J	ND (1.2) J	ND (0.51) J	6.5 J	ND (0.84) J	3.1 J	ND (0.59) J	ND (0.86) J	ND (0.98) J	ND (19) J	ND (0.25) J	ND (0.091) J	ND (0.77) J	2,300 J	24 J	3.2	6.7	6.7

TABLE 3-39i
Sample Results: Dioxins and Furans
Offsite Migration Assessment
RFI/RI Report, Volume 3 – Results of Soil and Sediment Investigation
PG&E Topock Compressor Station, Needles, California

				Dioxin/Furans (ng/kg)																			
			Interim Screening Level [1] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	16	50	5.58
			Residential Regional Screening Levels [2] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	4.8	NE	NE	NE	4.8	NE	NE	NE	NE	4.8	NE
			Residential DTSC-SL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	50	NE
			Ecological Comparison Values [4] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	16	NE	1.6
			Background [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.98	5.58	5.58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1,2,3,4,6,7,8-HpCDD**	**1,2,3,4,6,7,8-HpCDF**	**1,2,3,4,7,8,9-HpCDF**	**1,2,3,4,7,8-HxCDD**	**1,2,3,4,7,8-HxCDF**	**1,2,3,6,7,8-HxCDD**	**1,2,3,6,7,8-HxCDF**	**1,2,3,7,8,9-HxCDD**	**1,2,3,7,8,9-HxCDF**	**1,2,3,7,8-PeCDD**	**1,2,3,7,8-PeCDF**	**2,3,4,6,7,8-HxCDF**	**2,3,4,7,8-PeCDF**	**2,3,7,8-TCDD**	**2,3,7,8-TCDF**	**OCDD**	**OCDF**	**TEQ Avian**	**TEQ Human**	**TEQ Mammals**
AOC1																							
PA-14	01/27/16	0 - 1	N	660 J	49 J	4.1 J	7.1 J	ND (3.2) J	20 J	4.3 J	14 J	ND (0.51) J	4.9 J	ND (1.4) J	ND (64) J	2.1 J	ND (0.53) J	3.2 J	5,300 J	92 J	18	23	23
PA-15	01/27/16	0 - 1	N	2,600 J	320 J	15 J	21 J	19 J	85 J	25 J	43 J	4.5 J	10 J	4 J	ND (340) J	6.7 J	ND (0.93) J	4.2 J	22,000 J	370 J	58	86	86
PA-16	01/27/16	0 - 1	N	880 J	74 J	5.1 J	7.2 J	6 J	24 J	7.1 J	12 J	1.6 J	ND (0.95) J	2.1 J	ND (110) J	2.3 J	ND (0.63) J	ND (1.2) J	7,300 J	140 J	15	25	25
AOC9																							
PA-23	01/27/16	0 - 1	N	680 J	67 J	5.7 J	ND (6.3) J	19 J	19 J	8.5 J	ND (9.5) J	ND (2.4) J	ND (1.9) J	28 J	ND (59) J	ND (11) J	ND (1.2) J	36 J	6,700 J	96 J	55	26	26
AOC10																							
PA-18	01/27/16	0 - 1	N	11,000 J	760 J	43 J	86 J	41 J	280 J	53 J	140 J	8.6 J	43 J	10 J	ND (470) J	16 J	ND (3.5) J	8.1 J	87,000 J	1,700 J	150	280	280
PA-19	01/27/16	0 - 1	N	6,700 J	570 J	ND (35) J	69 J	ND (38) J	190 J	ND (26) J	110 J	ND (4.2) J	48 J	16 J	ND (450) J	14 J	ND (6.1) J*	19 J	71,000 J	2,000 J	150	220	220
PA-20	01/27/16	0 - 1	N	55,000 J	4,700 J	240 J	140 J	550 J	1,900 J	130 J	260 J	170 J	44 J	120 J	ND (7,400) J	270 J	ND (10) J*	77 J	440,000 J	13,000 J	1,100	1,600	1,600
PA-21	01/27/16	0 - 1	N	25,000 J	1,300 J	65 J	79 J	150 J	550 J	ND (46) J	120 J	45 J	30 J	42 J	ND (1,800) J	66 J	3.7 J	23 J	250,000 J	3,100 J	320	580	580
AOC11																							
PA-09	01/27/16	0 - 1	N	480 J	28 J	1.9 J	5.8 J	2.8 J	16 J	ND (3.2) J	7.9 J	ND (1.3) J	3.7 J	ND (1.8) J	ND (22) J	ND (1.8) J	ND (0.6) J	1.9 J	2,400 J	45 J	11	15	15
PA-10	01/27/16	0 - 1	N	4,600 J	320 J	20 J	47 J	27 J	130 J	22 J	66 J	4.8 J	28 J	9.1 J	ND (260) J	10 J	ND (2.3) J	3.9 J	41,000 J	530 J	85	140	140
PA-11	01/27/16	0 - 1	N	3,300 J	340 J	23 J	40 J	23 J	120 J	29 J	60 J	4.4 J	25 J	6.1 J	ND (340) J	9.7 J	ND (2.4) J	5.3 J	25,000 J	460 J	83	120	120
	01/25/17	2 - 3	N	51	7 J	ND (0.42)	0.77 J	ND (0.53)	ND (2)	0.78 J	1.2 J	ND (0.16)	ND (0.46)	ND (0.43)	ND (10)	ND (1.1)	ND (0.19)	ND (0.23)	410	11 J	2	2.1	2.1
PA-12	01/27/16	0 - 1	N	20,000 J	1,500 J	95 J	45 J	160 J	410 J	59 J	94 J	60 J	22 J	24 J	ND (1,900) J	42 J	ND (3.3) J	9.5 J	290,000 J	6,000 J	280	520	520
	01/25/17	2 - 3	N	65	7.5 J	ND (0.96)	ND (0.57)	ND (0.37)	1.8 J	ND (0.49)	ND (1.1)	ND (0.26)	ND (0.24)	ND (0.3)	ND (5.3)	ND (0.3)	ND (0.1)	ND (0.14)	620	43	1	1.7	1.7

Only Category 1 data shown (i.e., validated data suitable for all uses, including risk assessment and remedial action decisions).
Results greater than or equal to the Interim Screening Level are circled.

§ Sample removed during 2020 excavation
-¥ debris sample / not analyzed
ψ tar sample

ft bgs ft bgs = feet below ground surface
ng/kg ng/kg = nanograms per kilogram
DTSC DTSC = California Department of Toxic Substances Control
DTSC-SL DTSC-SL = DTSC Screening Level
FD FD = Field Dupliicate
N N = Primary Sample
NA NA = not applicable
NE NE = not established
ND ND = not detected at the listed reporting limit
J J = concentration or reporting limit estimated by laboratory or data validation
R R = rejected by laboratory or data validation
TEQ TEQ = Sum of Result x Toxic equivalency factor (TEF), 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
TEQ Avian TEQ Avian = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U.
TEQ Mammals TEQ Mammals = Sum of Result x TEF, 1/2 reporting limit used for nondetects. If all Dioxins and Furans are nondetect, the final qualifier code is U

USEPA USEPA = United States Environmental Protection Agency

1 Selected value is the lower of the ECV, residential DTSC-SL, or USEPA residential regional screening value, unless the background value is higher.

2 United States Environmental Protection Agency (USEPA). 2017. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. November.

3 California Department of Toxic Substances Control (DTSC). 2017. Human Health Risk Assessment (HHRA) Note 2, Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites. April.

4 ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28. ARCADIS. 2009. "Topock Compression Station - Final Technical Memorandum 4: Ecological Comparison Values for Additional Dectected Chemicals in Soil." July 1.

5 CH2M. 2017. Revised Ambient Study of Dioxins and Furans at the Pacific Gas and Electric Company, Topock Compressor Station, Needles, California. October.

TABLE 3-39j

Maximum Factors of Exceedance Determined in Offsite Migration Assessment

RFI/RI Report, Volume 3 - Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth	Sample Type	Analyte	Factor of Exceedance[1]	Concentration	Screening Level	Units
AOC 1								
PA_01	11/9/2015	0-1	N	Total PCBs	1.4	285.5	204 (ISL)	µg/kg
PA_03	11/9/2015	0-1	N	Zinc	3.45	200	58 (ISL)	mg/kg
PA_04	11/9/2015	0-1	N	Lead	2.98	25	8.39 (ISL)	mg/kg
PA_14	1/27/2016	0-1	N	Zinc	4.66	270	58 (ISL)	mg/kg
PA 15	1/27/2016	0-1	N	TEQ Mammals	15.41	86	5.58 (ISL)	ng/kg
PA 16_	1/27/2016	0-1	N	TEQ Mammals	4.48	25	5.58 (ISL)	ng/kg
AOC 4								
AOC4_23	12/6/2015	0-1	N	Total PCBs	1.31	267	204 (ISL)	µg/kg
AOC4_24	12/6/2015	0-1	N	Total PCBs	37.3	7608.5	204 (ISL)	µg/kg
AOC4_25	11/20/2015	0-1	N	Total PCBs	35.34	7208.5	204 (ISL)	µg/kg
AOC4_26	11/20/2015	0-1	N	Copper	1.25	21	16.8 (ISL)	mg/kg
AOC4_27	11/20/2015	0-1	N	Total PCBs	34.89	7117	204 (ISL)	µg/kg
AOC4_28	11/20/2015	0-1	N	Total PCBs	67.69	13808.5	204 (ISL)	µg/kg
AOC4_29	12/2/2015	0-1	N	Zinc	2.93	170	58 (ISL)	mg/kg
AOC4_30	12/2/2015	0-1	N	TEQ Mammals	6.63	37	5.58 (ISL)	ng/kg
AOC4_31	12/2/2015	0-1	N	Copper	0.83	14	16.8 (ISL)	mg/kg
AOC4_32	12/2/2015	0-1	N	TEQ Mammals	16.49	92	5.58 (ISL)	ng/kg
AOC4_36	1/5/2017	0-0.5	N	Total PCBs	7.83	1597	204 (ISL)	µg/kg
AOC4_37	2/4/2017	0-0.5	N	Barium	2.68	1100	410 (ISL)	mg/kg
AOC4_38	2/2/2017	0-0.5	N	TEQ Mammals	5.38	30	5.58 (ISL)	ng/kg
AOC4_39	1/5/2017	0-0.5	N	TEQ Mammals	84.23	470	5.58 (ISL)	ng/kg
AOC4_40	2/6/2017	0-0.5	N	HMW PAHs	29.69	34440	1160 (ISL)	µg/kg
AOC4_41	2/2/2017	0-0.5	N	TEQ Mammals	9.5	53	5.58 (ISL)	ng/kg
AOC4 42	2/4/2017	0-0.5	N	TEQ Mammals	3.41	19	5.58 (ISL)	ng/kg
AOC4 tar	2/6/2017	0-0.5	N	HMW PAHs	65172.41	75600000	1160 (ISL)	µg/kg
BH_69	3/18/2011	0-0.5	N	TEQ Mammals	8.42	47	5.58 (ISL)	ng/kg
PA 17_	1/27/2016	0-1	N	TEQ Mammals	1.2	6.7	5.58 (ISL)	ng/kg
PA OS2	4/6/2011	0-0.5	FD	Molybdenum	3.8	5.2	1.37 (ISL)	mg/kg
AOC4_L01	5/14/2010	0	N	Copper	1.43	24	16.8 (ISL)	mg/kg
AOC4_L02	5/14/2010	0	N	Copper	1.49	25	16.8 (ISL)	mg/kg
AOC4_L03	5/13/2010	0	N	Copper	1.67	28	16.8 (ISL)	mg/kg
AOC4_M01	9/30/2010	0	N	Copper	1.37	23	16.8 (ISL)	mg/kg
AOC4_M02	9/30/2010	0	N	Copper	1.31	22	16.8 (ISL)	mg/kg
AOC4 M03	10/4/2010	0	N	Barium	1.59	650	410 (ISL)	mg/kg
AOC4 M04	10/5/2010	0	N	Nickel	0.92	25	27.3 (ISL)	mg/kg

TABLE 3-39j
Maximum Factors of Exceedance Determined in Offsite Migration Assessment
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth	Sample Type	Analyte	Factor of Exceedance[1]	Concentration	Screening Level	Units
AOC4_N01	9/30/2010	0	N	TEQ Mammals	2.33	13	5.58 (ISL)	ng/kg
AOC4_N02	9/30/2010	0	N	Nickel	0.88	24	27.3 (ISL)	mg/kg
AOC4_N03	10/4/2010	0	N	TEQ Mammals	0.75	4.2	5.58 (ISL)	ng/kg
AOC4_N04	10/5/2010	0	N	Nickel	0.99	27	27.3 (ISL)	mg/kg
AOC4_N05	10/5/2010	0	N	Nickel	0.99	27	27.3 (ISL)	mg/kg
AOC4_O02	10/4/2010	0	N	Zinc	0.74	43	58 (ISL)	mg/kg
AOC4_O03	10/26/2010	0	FD	Nickel	1.03	28	27.3 (ISL)	mg/kg
AOC4_O03	10/26/2010	0	N	Nickel	1.03	28	27.3 (ISL)	mg/kg
AOC4_O04	10/26/2010	0	N	TEQ Mammals	2.15	12	5.58 (ISL)	ng/kg
AOC4_O05	10/27/2010	0	FD	Nickel	0.99	27	27.3 (ISL)	mg/kg
AOC4_O06	10/7/2010	0	N	Lead	4.05	34	8.39 (ISL)	mg/kg
AOC4_P03	10/4/2010	0	N	TEQ Mammals	0.82	4.6	5.58 (ISL)	ng/kg
AOC4_P04	11/19/2010	0	N	Chromium, Hexavalent	13.25	11	0.83 (ISL)	mg/kg
AOC4_P05	10/27/2010	0	FD	Nickel	0.84	23	27.3 (ISL)	mg/kg
AOC4_P05	10/27/2010	0	N	Nickel	0.84	23	27.3 (ISL)	mg/kg
AOC4_P06	10/25/2010	0	N	Nickel	1.06	29	27.3 (ISL)	mg/kg
AOC4_P07	10/22/2010	0	N	TEQ Mammals	4.66	26	5.58 (ISL)	ng/kg
AOC4_P08	10/22/2010	0	N	Nickel	0.88	24	27.3 (ISL)	mg/kg
AOC4_Q04	10/7/2010	0	N	TEQ Mammals	9.5	53	5.58 (ISL)	ng/kg
AOC4_Q05	10/7/2010	0	N	TEQ Mammals	10.39	58	5.58 (ISL)	ng/kg
AOC4_Q06	10/25/2010	0	N	Nickel	1.1	30	27.3 (ISL)	mg/kg
AOC4_Q07	10/25/2010	0	N	TEQ Mammals	4.3	24	5.58 (ISL)	ng/kg
AOC4_Q08	10/22/2010	0	N	Nickel	1.17	32	27.3 (ISL)	mg/kg
AOC4_R05	10/29/2010	0	N	Nickel	1.1	30	27.3 (ISL)	mg/kg
AOC4_R05	10/29/2010	0	FD	Nickel	1.1	30	27.3 (ISL)	mg/kg
AOC4_R06	10/7/2010	0	N	TEQ Mammals	3.41	19	5.58 (ISL)	ng/kg
AOC4_R07	10/8/2010	0	N	TEQ Mammals	6.63	37	5.58 (ISL)	ng/kg
AOC 7								
AOC7_5	1/6/2016	0-0.5	N	Zinc	0.74	43	58 (ISL)	mg/kg
AOC 8								
AOC8_1	1/7/2016	0-0.5	N	Mercury	24.8	0.31	0.0125 (ISL)	mg/kg
AOC 9								
PA_05	11/9/2015	0-1	N	Zinc	1.43	83	58 (ISL)	mg/kg
PA_23	1/27/2016	0-1	N	TEQ Mammals	4.66	26	5.58 (ISL)	ng/kg
AOC 10								
PA_06	11/9/2015	0-1	N	Zinc	1.28	74	58 (ISL)	mg/kg

TABLE 3-39j
Maximum Factors of Exceedance Determined in Offsite Migration Assessment
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth	Sample Type	Analyte	Factor of Exceedance[1]	Concentration	Screening Level	Units
PA_18	1/27/2016	0-1	N	TEQ Mammals	50.18	280	5.58 (ISL)	ng/kg
PA_19	1/27/2016	0-1	N	B(a)P	74.55	8200	110 (ISL)	µg/kg
PA 20	1/27/2016	0-1	N	TEQ Mammals	286.74	1600	5.58 (ISL)	ng/kg
PA_21	1/27/2016	0-1	N	TEQ Mammals	103.94	580	5.58 (ISL)	ng/kg
AOC 11								
PA_07	11/9/2015	0-1	N	B(a)P Equivalent	4.27	470	110 (ISL)	µg/kg
PA_09	1/27/2016	0-1	N	Lead	17.88	150	8.39 (ISL)	mg/kg
PA_10	1/27/2016	0-1	N	TEQ Mammals	25.09	140	5.58 (ISL)	ng/kg
PA 11	1/27/2016	0-1	N	TEQ Mammals	21.51	120	5.58 (ISL)	ng/kg
PA 12	1/27/2016	0-1	N	TEQ Mammals	93.19	520	5.58 (ISL)	ng/kg
AOC 13								
AOC13_13	1/9/2016	0-0.5	N	Mercury	10.4	0.13	0.0125 (ISL)	mg/kg
AOC13_18	1/6/2016	0-0.5	N	TEQ Mammals	1.97	11	5.58 (ISL)	ng/kg
AOC13_19	1/8/2016	0-0.5	N	Mercury	13.6	0.17	0.0125 (ISL)	mg/kg
AOC13_20	1/8/2016	0-0.5	N	Mercury	30.4	0.38	0.0125 (ISL)	mg/kg
AOC13_21	1/8/2016	0-0.5	FD	Mercury	10.4	0.13	0.0125 (ISL)	mg/kg
AOC13_26	1/9/2016	0-0.5	N	Copper	1.07	18	16.8 (ISL)	mg/kg
AOC13_30	1/7/2016	0-0.5	N	TEQ Mammals	75.27	420	5.58 (ISL)	ng/kg
AOC13_31	1/7/2016	0-0.5	N	TEQ Mammals	19.71	110	5.58 (ISL)	ng/kg
AOC13_32	12/4/2015	0-0.5	N	Zinc	0.5	29	58 (ISL)	mg/kg
AOC13_33	2/15/2017	0-0.5	N	TEQ Mammals	394.27	2200	5.58 (ISL)	ng/kg
AOC13_9	1/9/2016	0-0.5	N	TEQ Mammals	14.52	81	5.58 (ISL)	ng/kg
AOC13_PITOS7	7/26/2011	0-0.5	N	Lead	0.89	7.5	8.39 (ISL)	mg/kg
AOC13 PITOS8	7/26/2011	0-0.5	N	Lead	1.67	14	8.39 (ISL)	mg/kg
AOC13 PITOS9	7/26/2011	0-0.5	N	Cyanide	1.11	1	0.9 (ISL)	mg/kg
BH_65	3/24/2011	0-0.5	N	TEQ Mammals	4.84	27	5.58 (ISL)	ng/kg
BH_66	3/23/2011	0-0.5	N	Lead	1.06	8.9	8.39 (ISL)	mg/kg
PA_02	11/9/2015	0-1	N	Mercury	12	0.15	0.0125 (ISL)	mg/kg
PA 22	1/27/2016	0-1	N	Lead	3.81	32	8.39 (ISL)	mg/kg
PA OS3	12/10/2014	0.5	N	Total PCBs	1.25	255.5	204 (ISL)	µg/kg
PGE LT OS9	3/8/2007	0.5	N	Copper	1.07	18	16.8 (ISL)	mg/kg
PGE UTOS1	3/8/2007	0.5	N	Copper	3.21	54	16.8 (ISL)	mg/kg
SD_07	12/17/2015	0-1	N	Zinc	6.9	400	58 (ISL)	mg/kg
SD_24	3/9/2016	0-1	N	Zinc	17.24	1000	58 (ISL)	mg/kg
SD 31	2/15/2017	0-0.5	N	TEQ Mammals	62.72	350	5.58 (ISL)	ng/kg
SD OS38	12/13/2016	0-0.5	N	Molybdenum	1.02	1.4	1.37 (ISL)	mg/kg

TABLE 3-39j
Maximum Factors of Exceedance Determined in Offsite Migration Assessment
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth	Sample Type	Analyte	Factor of Exceedance[1]	Concentration	Screening Level	Units
SD OS39	11/29/2016	0-0.5	FD	Total PCBs	1.71	348	204 (ISL)	µg/kg
SD OS40	12/6/2016	0-0.5	N	Copper	0.43	7.3	16.8 (ISL)	mg/kg
AOC 16								
AOC16_1	1/11/2016	0-0.5	N	Mercury	9.6	0.12	0.0125 (ISL)	mg/kg
AOC16_2	1/11/2016	0-0.5	N	Mercury	8	0.1	0.0125 (ISL)	mg/kg
AOC16_3	1/11/2016	0-0.5	N	Mercury	9.6	0.12	0.0125 (ISL)	mg/kg
AOC16 4	1/11/2016	0-1	N	Mercury	11.2	0.14	0.0125 (ISL)	mg/kg
AOC16 grit	1/5/2017	0-0.5	N	Copper	89.29	1500	16.8 (ISL)	mg/kg
AOC2A	2/20/2003	0.4	N	Zinc	6.33	367	58 (ISL)	mg/kg
AOC2B	2/20/2003	0.4	N	Copper	0.67	11.2	16.8 (ISL)	mg/kg
AOC 18								
AOC18_1	1/12/2016	0-0.5	N	TEQ Mammals	28.67	160	5.58 (ISL)	ng/kg
AOC18_10	12/16/2015	0-0.5	N	Lead	0.69	5.8	8.39 (ISL)	mg/kg
AOC18_11	1/11/2016	0-0.5	N	Mercury	10.4	0.13	0.0125 (ISL)	mg/kg
AOC18_12	12/4/2015	0-0.5	N	TEQ Mammals	4.84	27	5.58 (ISL)	ng/kg
AOC18_2	1/12/2016	0-0.5	N	Zinc	0.62	36	58 (ISL)	mg/kg
AOC18_5	12/4/2015	0-0.5	N	TEQ Mammals	5.02	28	5.58 (ISL)	ng/kg
AOC18 6	12/4/2015	0-0.5	N	Chromium, total	0.95	38	39.8 (ISL)	mg/kg
AOC18_9	12/7/2015	0-0.5	N	Mercury	19.2	0.24	0.0125 (ISL)	mg/kg
AOC 20								
AOC20_OS11	12/21/2016	0-0.5	N	Lead	0.73	6.1	8.39 (ISL)	mg/kg
AOC 21								
AOC21_1	1/12/2016	0-0.5	N	Lead	0.95	8	8.39 (ISL)	mg/kg
AOC21_OS1	9/23/2014	0-0.5	N	Lead	1.43	12 J	8.39 (ISL)	mg/kg
AOC21_OS2	9/23/2014	0-0.5	N	Mercury	11.2	0.14	0.0125 (ISL)	mg/kg
AOC21 OS3	9/23/2014	0-0.5	N	Copper	1.07	18	16.8 (ISL)	mg/kg
AOC21_OS4	9/23/2014	0-0.5	N	Lead	0.69	5.8	8.39 (ISL)	mg/kg
AOC 22								
AOC22_1	1/6/2016	0-0.5	FD	Chromium, Hexavalent	3.98	3.3 J	0.83 (ISL)	mg/kg
AOC22 2	1/6/2016	0-0.5	N	TEQ Mammals	5.56	31	5.58 (ISL)	ng/kg
AOC22_3	1/17/2017	0-0.5	N	TEQ Mammals	35.84	200	5.58 (ISL)	ng/kg
AOC 24								
AOC24_1	1/10/2016	0-0.5	N	Chromium, Hexavalent	1.2	1	0.83 (ISL)	mg/kg
AOC24_2	1/11/2016	0-0.5	N	TEQ Mammals	1.11	6.2	5.58 (ISL)	ng/kg
AOC24 OS1	12/14/2011	0-0.5	N	Chromium, Hexavalent	1.45	1.2	0.83 (ISL)	mg/kg
AOC24 OS2	12/14/2011	0-0.5	N	Lead	2.03	17	8.39 (ISL)	mg/kg

TABLE 3-39j
Maximum Factors of Exceedance Determined in Offsite Migration Assessment
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth	Sample Type	Analyte	Factor of Exceedance[1]	Concentration	Screening Level	Units
AOC 27								
PA_13	1/27/2016	0-1	N	Zinc	0.78	45	58 (ISL)	mg/kg
AOC 31								
PA 08	11/9/2015	0-1	N	Copper	3.69	62	16.8 (ISL)	mg/kg
PA OS1	4/6/2011	0-0.5	N	TPH as diesel	0.07	15	230 (ISL)	mg/kg
SWMU 5								
SWMU5 1	12/8/2015	0-1	N	B(a)P Equivalent	0.52	57	110 (ISL)	µg/kg
SWMU5_2	12/7/2015	0-0.5	N	TEQ Mammals	7.53	42	5.58 (ISL)	ng/kg
SWMU 6								
SWMU6_1	12/7/2015	0-1	N	Manganese	0.62	250	402 (ISL)	mg/kg
Units 4.3 - 4.5								
Units4.3 1	12/7/2015	0-1	N	Copper	0.83	14	16.8 (ISL)	mg/kg

[1]The factor of exceedance is calculated by dividing the sample concentration by the applicable screening level.
µg/kg = microgram per kilogram
B(a)P = benzo(a)pyrene
FD = field duplicate
HMW PAHs = high molecular weight polycyclic aromatic hydrocarbons
ISL = interim screening level
J = concentration or reporting limit estimated by laboratory or data validation
mg/kg = milligrams per kilogram
N = primary sample
ng/kg = nanogram per kilogram
PCBs = polychlorinated bisphenyls
TEQ = toxic equivalency factor
TPH = total petroleum hydrocarbons

TABLE 3-40
Storm Drain Flush Water Sample Results
RFI/RI Report, Volume 3 – Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Sample	SDOF-02	SDOF-03	SDOF-05	SDOF-06	SDOF-07	SDOF-08	SDOF-09	SDOF-11-01	SDOF-11-02	SDOF-12	SDOF-13B	SDOF-14	SDOF-14	SDOF-Source
Date	11/12/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/11/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	2/2/2016	11/11/2015
Metals (µg/L)														
Antimony, dissolved	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Arsenic, dissolved	11	6.5	12	13	12	7.2	7.3	12	7.8	16	11	9.4	7	7.3
Barium, dissolved	67	130	67	130	50	63	60	100	73	31	69	96	69	44
Beryllium, dissolved	2.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U	0.5 U
Cadmium, dissolved	0.5 U	0.5 U	0.5 U	0.79	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chromium, Hexavalent	9	11	0.88 J	8.5 J	0.2 U	0.36	1.1	0.6	0.67	0.2 U	8.7	7.9	2.4	0.2 U
Chromium, total dissolved	8.3	12	10 J	14 J	4.3	1.2	1.5	7.4	2.3	1 U	8.9	7.3	2.3	1.9
Cobalt, dissolved	0.5 U	0.5 U	0.5 U	1.3	0.5 U	0.5 U	0.5 U	0.85	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Copper, dissolved	1.5	7.9	1 U	9.2	3.5	3.8	4.6	6.7	3.2	1.5	1 U	1.6	2.8	1 U
Lead, dissolved	1 U	4.7	1 U	6.7	1 U	1.1	1 U	5.3	1 U	1 U	1 U	1 U	1 U	1 U
Mercury, dissolved	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Molybdenum, dissolved	19	39	19	20	19	58	21	58	53	22	19	18 J	23	18
Nickel, dissolved	1 U	1.1	1 U	3	1 U	1 U	1 U	3.1	1 U	1.3	1 U	1 U	1 U	1 U
Selenium, dissolved	0.75	0.8	0.71	0.89	0.5 U	0.78	0.68	0.92	0.68	0.66	0.63	0.69	0.64	0.59
Silver, dissolved	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.55
Thallium, dissolved	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vanadium, dissolved	16	7.7	17	21	2.7	9.4	9.3	17	10	22	17	14	8.1	9.2
Zinc, dissolved	46	20	140	320	14	91	38	29	10 U	12	260	390	45	49
Polycyclic Aromatic Hydrocarbons (PAHs) (µg/L)														
1-Methyl naphthalene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
2-Methyl naphthalene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Acenaphthene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Acenaphthylene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Anthracene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
B(a)P Equivalent	0.23 U	0.36	0.24 U	2.4	0.24 U	2.3 U	2.3	2.5 U	0.24 U	0.25 U	0.25 U	0.23 U	0.26	0.25 U
Benzo (a) anthracene	0.2 U	0.2 U	0.21 U	2.1 U	0.21 U	0.21 U	0.21 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Benzo (a) pyrene	0.2 U	0.2	0.21 U	2.1 U	0.21 U	2.1 U	2.1 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Benzo (b) fluoranthene	0.2 U	0.38	0.21 U	2.1 U	0.21 U	2.1 U	2.1 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.25	0.22 U
Benzo (ghi) perylene	0.2 U	0.24	0.21 U	2.1 U	0.21 U	2.1 U	2.1 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Benzo (k) fluoranthene	0.2 U	0.2 U	0.21 U	2.1 U	0.21 U	2.1 U	2.1 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Chrysene	0.2 U	0.22	0.21 U	2.1 U	0.21 U	0.21 U	0.33	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Dibenzo (a,h) anthracene	0.2 U	0.2 U	0.21 U	2.1 U	0.21 U	2.1 U	2.1 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Fluoranthene	0.2 U	0.22	0.21 U	0.3	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.38	0.22 U
Fluorene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Indeno (1,2,3-cd) pyrene	0.2 U	0.2 U	0.21 U	2.1 U	0.21 U	2.1 U	2.1 U	2.2 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Naphthalene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
PAH High molecular weight		1.48		0.57			0.33						0.95	
Phenanthrene	0.2 U	0.2 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.21 U	0.22 U
Pyrene	0.2 U	0.22	0.21 U	0.27	0.21 U	0.21 U	0.21 U	0.22 U	0.21 U	0.22 U	0.22 U	0.2 U	0.32	0.22 U
Polychlorinate Bisphenyls (PCBs) (µg/L)														
Aroclor 1016	0.52 U	0.52 U	0.53 U	0.54 U	0.54 U	0.53 U	0.52 U	0.53 U	0.53 U	0.53 U	0.54 U	0.51 U	0.25 U	0.47 U
Aroclor 1221	1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U	0.5 U	0.94 U
Aroclor 1232	0.52 U	0.52 U	0.53 U	0.54 U	0.54 U	0.53 U	0.52 U	0.53 U	0.53 U	0.53 U	0.54 U	0.51 U	0.25 U	0.47 U
Aroclor 1242	0.52 U	0.52 U	0.53 U	0.54 U	0.54 U	0.53 U	0.52 U	0.53 U	0.53 U	0.53 U	0.54 U	0.51 U	0.25 U	0.47 U
Aroclor 1248	0.52 U	0.52 U	0.53 U	0.54 U	0.54 U	0.53 U	0.52 U	0.53 U	0.53 U	0.53 U	0.54 U	0.51 U	0.25 U	0.47 U
Aroclor 1254	0.52 U	0.52 U	0.53 U	0.54 U	0.54 U	0.53 U	0.52 U	0.53 U	0.53 U	0.53 U	1.4	0.51 U	0.29	0.47 U
Aroclor 1260	0.52 U	0.52 U	0.53 U	0.54 U	0.54 U	0.53 U	0.52 U	0.53 U	0.53 U	0.53 U	1	0.51 U	0.25 U	0.47 U
Total Petroleum Hydrocarbons (TPH) (µg/L)														
TPH as diesel	860	67	52 U	230	83	450	150	290	92	55	73	200	50 U	48 U
TPH as motor oil	6700	170	52 U	850	82	1100	620	590	140	98	58	190	50 U	53

µg/L = micrograms per liter
J = concentration or reporting limit estimated by laboratory or data validation
U = not detected at the listed reporting limit

TABLE 3-41a

Catch Basin Sediment Sample Results: Metals

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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals [a] [b] (mg/kg)																	
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium, Hexavalent**	**Chromium, total**	**Cobalt**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
CB-01	11/7/2015	0-1	N	2.2 U	4.2	180 J	1.1 U	2.7	0.8	87 J	7.8	280	270	0.72 J	15 J	33	1.1 U	1.1 U	2.2 U	18	920 J
CB-01	11/7/2015	0-1	FD	2.2 U	4.8	320 J	1.1 U	3.4	0.81	110 J	8.5	280	300	1.2 J	21 J	39	1.1 U	1.1 U	2.2 U	17	750 J
CB-03	11/7/2015	0-1	N	2.8 J	4	530	1.1 U	2.3	1.9	360	12	1800	500	11	16 J	50 J	1.1 U	1.1 UJ	2.2 U	14	670
CB-06	11/7/2015	0-1	N	2.7 U	4.5	470	1.3 U	1.9	1.5	300	8.3	290	1400	1.6	17	18	1.3 U	1.3 U	2.7 U	24	2500
CB-06	11/9/2015	0-1	N	2.5 U	5.9	440	1.3 U	1.3	0.26 U	90	9.9	120	520	13	21	17	1.3 U	1.3 U	2.5 U	14	1000
CB-08	11/7/2015	0-1	N	2.2 U	3.7	60	1.1 U	1.1 U	0.53	15	3.7	71	29	0.15	2.6	11	1.1 U	1.1 U	2.2 U	17	120
CB-09	11/7/2015	0-1	N	2 U	3.5	170	1 U	1 U	0.2 U	22	5.2	66	39	0.1 U	6.4	14	1 U	1 U	2 U	21	400
CB-11	11/7/2015	0-1	N	4.2	19	180	1.1 U	2.9	0.75	190	15	400	97	0.14	36	180	3.6	1.1 U	2.3 U	16	300
CB-13	11/7/2015	0-1	N	2.4 U	4.4	100	1.2 U	1.2 U	0.24 U	20	3.9	42	9.6	0.12 U	1.9	13	1.2 U	1.2 U	2.4 U	24	240
CB-15	2/2/2016	0-1	N	2.2 UJ	8.6	290	1.1 U	1.3	3.4	120	8.6	33	50	0.11 U	1.2	23 J	1.1 UJ	1.1 U	2.2 UJ	35	170
CB-16	11/7/2015	0-1	N	2 U	3.6	86	1 U	1 U	0.2 U	24	4.8	58	12	0.1 U	4.2	17	1 U	1 U	2 U	17	510
CB-17	11/7/2015	0-1	N	2 U	3.7	46	1 U	1 U	0.2 U	11	4.1	19	4.3	0.1 U	1 U	10	1 U	1 U	2 U	17	28
CB-20	11/7/2015	0-1	N	2.2 U	3.8	68	1.1 U	1.1 U	0.3	74	5	16	11	0.11 U	1.1 U	12	1.1 U	1.1 U	2.2 U	21	66
CB-21	11/7/2015	0-1	N	2.1 U	3.5	93	1.1 U	1.1 U	0.51	26	4.8	25	19	0.11 U	5.5	14	1.1 U	1.1 U	2.1 U	21	87
CB-22	12/16/2016	3-6	N	2.2 UJ	7.7	230 J	1.1 U	1.8	0.92	280 J	8.2	66 J	88 J	0.34	8.9 J	20	1.1 UJ	1.1 U	2.2 UJ	31	290 J
CB-23	11/7/2015	0-1	N	2 UJ	3.5	170	1 U	1 U	0.22	27	5.7	17	17	0.1 U	1 U	16	1 U	1 U	2 U	27	300
CB-26	11/7/2015	0-1	N	2.1 U	6.3	220	1 U	1 U	2.5	73	6.2	160	120	0.22	14	33	1 U	1 U	2.1 U	18	270
CB-27	11/7/2015	0-1	N	2.2 U	5.7	130	1.1 U	1.1 U	0.22 U	41	5.3	120	50	0.11 U	15	23	1.1 U	1.1 U	2.2 U	18	290
CB-28	11/7/2015	0-1	N	2.4 U	5.9	210	1.2 U	1.2 U	0.24 U	78	6.6	420	86	0.74	43	43	1.2 U	1.2 U	2.4 U	15	1300
CB-30	11/7/2015	0-1	N	2.1 U	8.6	300	1.1 U	7	16	150	10	600	170	1.7	50	76	1.5	4.9	2.1 U	24	1000

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mg/kg = milligrams per kilogram

N = primary sample

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TABLE 3-41b

Catch Basin Sediment Sample Results: Contract Laboratory Program Inogranics

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Sample Type	Contract Laboratory Program Inorganics [a] [b] (mg/kg)							
				Aluminum	Calcium	Cyanide	Iron	Magnesium	Manganese	Potassium	Sodium
CB-01	11/7/2015	0-1	N	6000	24000 J	0.225 UJ	23000 J	4700	290	1600	500
CB-01	11/7/2015	0-1	FD	5000	19000 J	0.224 UJ	36000 J	3900	290	1400	370
CB-03	11/7/2015	0-1	N	3500	10000	0.218 UJ	14000	2500	160	1200 J	180 J
CB-06	11/7/2015	0-1	N	7000	18000	0.269 UJ	20000	4100	180	1900	270
CB-06	11/9/2015	0-1	N	4000	18000	0.253 UJ	16000	2700	170	1200	180
CB-08	11/7/2015	0-1	N	3600	7700	0.222 UJ	9600	2800	160	960	150
CB-09	11/7/2015	0-1	N	5700	8000	0.203 UJ	16000	4100	200	1300	210
CB-11	11/7/2015	0-1	N	3700	11000	0.229 UJ	97000	2900	520	1100	180
CB-13	11/7/2015	0-1	N	4700	8200	0.24 UJ	12000	3400	130	1100	260
CB-15	2/2/2016	0-1	N	16000	59000	0.221 U	20000	10000	350	3100	560
CB-16	11/7/2015	0-1	N	4700	14000	0.201 UJ	14000	3800	210	920	250
CB-17	11/7/2015	0-1	N	4400	13000	0.202 UJ	10000	3800	150	790	440
CB-20	11/7/2015	0-1	N	6700	20000	0.22 UJ	13000	5300	200	1300	200
CB-21	11/7/2015	0-1	N	5900	20000	0.215 UJ	15000	4700	210	1500	230
CB-23	11/7/2015	0-1	N	8100	30000	0.2 UJ	16000	7000	220	2100 J	170 J
CB-26	11/7/2015	0-1	N	5000	31000	0.204 UJ	22000	3800	270	1400	490
CB-27	11/7/2015	0-1	N	3400	13000	0.217 UJ	23000	2600	170	880	170
CB-28	11/7/2015	0-1	N	3800	14000	0.238 UJ	20000	3200	210	1600	790
CB-30	11/7/2015	0-1	N	4900	25000	0.214 UJ	45000	3300	350	1500	1700

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TABLE 3-41c

Catch Basin Sediment Sample Results: Polycyclic Aromatic Hydrocarbons

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (PAH) [a] [b] (µg/kg)																					
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo (a) anthracene**	**Benzo (a) pyrene**	**Benzo (b) fluoranthene**	**Benzo (ghi) perylene**	**Benzo (k) fluoranthene**	**Chrysene**	**Dibenzo (a,h) anthracene**	**Fluoranthene**	**Fluorene**	**Indeno (1,2,3-cd) pyrene**	**Naphthalene**	**Phenanthrene**	**Pyrene**	**PAH Low molecular weight**	**PAH High molecular weight**	**B(a)P Equivalent**
CB-01	11/7/2015	0-1	N	5.9 J	10 J	5.6 UJ	5.6 UJ	5.6 UJ	120	180	500	84	130	200	84 U	100 J	5.6 UJ	84 U	5.6 UJ	26 J	94 J	41.9	1408	290
CB-01	11/7/2015	0-1	FD	84 U	84 U	84 U	84 U	84 U	84 UJ	840 U	840 U	840 U	840 U	130	840 U	110	84 U	840 U	84 U	84 U	110	0	350	930
CB-03	11/7/2015	0-1	N	81 U	81 U	81 U	81 U	81 U	240	810 U	870	810 U	810 U	400	810 U	370	81 U	810 U	81 U	92	390	92	2270	970
CB-06	11/7/2015	0-1	N	17000	21000	330 U	330 U	330 U	3000	4700	10000	3800	3300 U	4900	3300 U	4500	330 U	3600	3700	870	4800	42570	39300	8000
CB-06	11/9/2015	0-1	N	4200	3900	64 U	64 U	64 U	640 U	640 U	640 U	640 U	640 U	720	640 U	340	64 U	640 U	1700	120	410	9920	1470	740
CB-08	11/7/2015	0-1	N	280 U	280 U	280 U	280 U	280 U	3400	5100	8600	4000	3100	5000	2800 U	6000	280 U	3700	280 U	1200	6000	1200	44900	8100
CB-09	11/7/2015	0-1	N	250 U	250 U	250 U	250 U	250 U	1500	2700	6000	2500	2500 U	2600	2500 U	1800	250 U	2500 U	250 U	320	1900	320	19000	4800
CB-11	11/7/2015	0-1	N	85 U	85 U	85 U	85 U	85 U	210	850 U	850	850 U	850 U	420	850 U	300	85 U	850 U	85 U	85 U	320	0	2100	1000
CB-13	11/7/2015	0-1	N	590 U	590 U	590 U	590 U	590 U	590 U	5900 U	5900 U	5900 U	5900 U	590 U	5900 U	590 U	590 U	5900 U	590 U	590 U	590 U	0	0	6500 U
CB-15	2/2/2016	0-1	N	5.5 U	5.5 U	5.5 U	5.5 U	9.2	120	140	280	150	99	150	55 U	330	5.5 U	120	5.5 U	94	270	103.2	1659	220
CB-16	11/7/2015	0-1	N	5 U	5 U	5 U	5 U	5 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	18 J	5 U	50 U	5 U	9 J	18 J	9	36	58
CB-17	11/7/2015	0-1	N	5 U	5 U	5 U	5 U	5 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	9.4 J	5 U	50 U	5 U	5 U	8.4 J	0	17.8	58
CB-20	11/7/2015	0-1	N	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	80	120	340	55	120	150	55 U	82 J	5.5 U	55 U	5.5 U	27 J	75 J	27	1022	190
CB-21	11/7/2015	0-1	N	54 U	54 U	54 U	54 U	54 U	57	540 U	540 U	540 U	540 U	130	540 U	120	54 U	540 U	54 U	54 U	120	0	427	600
CB-22	12/16/2016	3-6	N	28 U	28 U	28 U	28 U	28 J	290 J	450 J	870 J	170 J	430 J	400 J	28 U	520 J	28 U	140 J	28 U	140 J	490 J	168	3760	600
CB-23	11/7/2015	0-1	N	5 U	5 U	5 U	5 U	5 U	23	50 U	64	50 U	50 U	37	50 U	58	5 U	50 U	5	46	48	51	230	61
CB-26	11/7/2015	0-1	N	26 U	28	26 U	26 U	26 U	86	260 U	480	460	260 U	220	260 U	150	26 U	280	26 U	29	170	57	1846	350
CB-27	11/7/2015	0-1	N	27 U	27 U	27 U	27 U	27 U	270 U	270 U	510	270 U	270 U	270 U	270 U	100	27 U	270 U	27 U	45	93	45	703	350
CB-28	11/7/2015	0-1	N	5.9 U	10 J	5.9 U	5.9 U	5.9 U	51 J	95	260	71	59 U	100 J	59 U	64 J	5.9 U	59 U	5.9 U	21 J	59 J	31	700	160
CB-30	11/7/2015	0-1	N	27 U	35	27 U	27 U	32	280	580	1400	270 U	370	570	270 U	290	27 U	270 U	27 U	100	360	167	3850	900

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TABLE 3-41d

Catch Basin Sediment Sample Results: Total Petroleum Hydrocarbons

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (TPH) [a] [b] (mg/kg)		
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**TPH as diesel**	**TPH as gasoline**	**TPH as motor oil**
CB-01	11/7/2015	0-1	N	450		470
CB-01	11/7/2015	0-1	FD	770		500
CB-03	11/7/2015	0-1	N	150		480
CB-06	11/7/2015	0-1	N	1200		4200
CB-06	11/9/2015	0-1	N	1400		9600
CB-08	11/7/2015	0-1	N	180		540
CB-09	11/7/2015	0-1	N	250		270
CB-11	11/7/2015	0-1	N	160		590
CB-13	11/7/2015	0-1	N	11000		16000
CB-15	2/2/2016	0-1	N	24		170
CB-16	11/7/2015	0-1	N	62		190
CB-17	11/7/2015	0-1	N	13		110
CB-20	11/7/2015	0-1	N	26		260
CB-21	11/7/2015	0-1	N	170		800
CB-22	12/16/2016	3-6	N	100 J	1.7 U	550 J
CB-23	11/7/2015	0-1	N	10 U		16
CB-26	11/7/2015	0-1	N	30		180 J
CB-27	11/7/2015	0-1	N	6700		9800
CB-28	11/7/2015	0-1	N	160		830
CB-30	11/7/2015	0-1	N	53		280

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mg/kg = milligrams per kilogram
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U = not detected at the listed reporting limit

TABLE 3-41e

Catch Basin Sediment Sample Results: Polychlorinated Bisphenyls

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

		Depth (ft	Sample	Polychlorinated Bisphenyls (µg/kg) [a] [b]									
Location	**Date**	**bgs)**	**Type**	**Aroclor 1016**	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Aroclor 1262**	**Aroclor 1268**	**Total PCBs**
CB-01	11/7/2015	0-1	N	18 U	37 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	36 U
CB-01	11/7/2015	0-1	FD	18 U	37 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	36 U
CB-03	11/7/2015	0-1	N	18 U	36 U	18 U	18 U	18 U	18 U	34	18 U	18 U	61
CB-06	11/7/2015	0-1	N	22 UJ	44 UJ	22 UJ	22 UJ	22 UJ	22 UJ	22 UJ	22 U	22 U	44 U
CB-06	11/9/2015	0-1	N	42 U	84 U	42 U	42 U	42 U	42 U	42 U	42 U	42 U	84 U
CB-08	11/7/2015	0-1	N	18 UJ	36 UJ	18 UJ	18 UJ	18 UJ	18 UJ	25 J	18 U	18 U	52
CB-09	11/7/2015	0-1	N	17 UJ	33 UJ	17 UJ	17 UJ	17 UJ	17 UJ	17 UJ	17 U	17 U	34 U
CB-11	11/7/2015	0-1	N	19 U	38 U	19 U	19 U	19 U	19 U	52	19 U	19 U	80.5
CB-13	11/7/2015	0-1	N	20 U	39 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	40 U
CB-15	2/2/2016	0-1	N	18 U	36 U	18 U	18 U	18 U	2000	18 U	18 U	18 U	2027
CB-16	11/7/2015	0-1	N	17 U	33 U	17 U	17 U	17 U	17 U	17 U	17 U	17 U	34 U
CB-17	11/7/2015	0-1	N	17 U	33 U	17 U	17 U	17 U	17 U	17 U	17 U	17 U	34 U
CB-20	11/7/2015	0-1	N	18 U	36 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U	36 U
CB-21	11/7/2015	0-1	N	18 U	35 U	18 U	18 U	18 U	18 U	30	18 U	18 U	57
CB-22	12/16/2016	3-6	N	18 U	36 U	18 U	18 U	18 U	220	79			317
CB-23	11/7/2015	0-1	N	17 UJ	33 U	17 U	17 U	17 U	71	46 J	17 U	17 U	134
CB-26	11/7/2015	0-1	N	17 UJ	34 UJ	17 UJ	17 UJ	17 UJ	17 UJ	17 UJ	17 U	17 U	34 U
CB-27	11/7/2015	0-1	N	18 U	36 U	18 U	18 U	18 U	34	18 U	18 U	18 U	61
CB-28	11/7/2015	0-1	N	20 U	39 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	40 U
CB-30	11/7/2015	0-1	N	17 U	35 U	17 U	17 U	17 U	54	17 U	17 U	17 U	79.5

[a] All data presented are Category 1 data.

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N = primary sample

PCBs = polychlorinated biphenyls

U = not detected at the listed reporting limit

UJ = not detected above the detection limit objective; however, the reported detection limit is approximate and might not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample

TABLE 3-41f

Catch Basin Sediment Sample Results: Dioxins and Furans

RFI/RI Report, Volume 3 – Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth (ft bgs)	Dioxin/Furan [a b]	Concentration (ng/kg)
CB-15	2/2/2016	0-1	1,2,3,4,6,7,8-HpCDD	39000 J
			1,2,3,4,6,7,8-HpCDF	4100 J
			1,2,3,4,7,8,9-HpCDF	290 J
			1,2,3,4,7,8-HxCDD	300 J
			1,2,3,6,7,8-HxCDD	1200 J
			1,2,3,7,8,9-HxCDD	420 J
			1,2,3,4,7,8-HxCDF	200 J
			1,2,3,6,7,8-HxCDF	120 J
			1,2,3,7,8,9-HxCDF	47 J
			2,3,4,6,7,8-HxCDF	7300 UJ
			OCDD	360000 J
			OCDF	25000 J
			1,2,3,7,8-PeCDD	140 J
			1,2,3,7,8-PeCDF	0.47 UJ
			2,3,4,7,8-PeCDF	60 J
			2,3,7,8-TCDD	13 UJ
			2,3,7,8-TCDF	18 J
			TEQ Avian	820
			TEQ Human	1300
			TEQ Mammals	1300

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ng/kg = nanograms per kilogram

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TABLE 3-42
Summary of Storm Drain Survey
RFI/RI Report, Volume 3 – Soil Investigation
PG&E Topock Compressor Station, Needles, California

Feature Number	Pipe Diameter (inches)	Approximate Total Length (feet)	Pipe Material and Length (feet)	Bends and Joints (feet)	Key Observations	Flow Pathway from Catchment Basin (CB) or Trench Drain Line (TDL) to Outfalls (SD samples)	Constituents Exceeding Screening Levels[a] in Catch Basin (CB) and Trench Drain (TD) Samples	Constituents Exceeding Screening Levels[a] in Soil (Outfall samples are bolded)	Constituents in Flow Test Water that Exceed Concentrations in Source Water
Storm Drain Lines (SDLs) (Extending Outside Topock Compressor Station [TCS])									
SDL-1	--	--	--	--	Not located		--	--	--
SDL-2	6	122	Cast Iron – 0 to 3.5 Black PVC – 3.5 to 5.67 Blue PVC – 4.67 to 47.5 Corrugated Steel – 47.5 to 122	90˚ bend from vertical to horizontal East at 0.83 45˚ bend North at 5.75 45˚ bend South and down at 58 45˚ bend North at 119.33	Pipe begins at Trench Drain 1; no sediment in trench drain Bottom of corrugated steel pipe rusty and corroded with possible small holes from 89.92 feet to 100 feet Transitions from horizontal to downward pipe at 58 feet	1. TDL-1 2. SD-01	No sediment	**Locations: SD-01** **Metals:** copper, total chromium (CrT), nickel, zinc **Organics:** none	**Metals:** arsenic, barium, hexavalent chromium (CrVI), CrT, copper, molybdenum, selenium, vanadium, zinc **Organics**: Total petroleum hydrocarbons (TPH)-diesel, TPH-motor oil
SDL-3 Segment A	4	65	Red Clay – 0 to 37.7 White PVC – 37.7 to 47.4 Red Clay – 47.4 to 65 Part of the section from 25 to 33 was cut and removed during December 2016 and replaced with new CPVC pipe. The entire section of line was videoed from CB-4 to CB-3.	90˚ bend South at 28	Pipe begins at Catch Basin (CB)-4 and joins SDL-3b at CB-3; sediment was present in CB-3 only Clay pipe has scale, but free of debris Silt in bottom of pipe at 14.1 feet and blockage from 25 to 33 feet (which is a 90-degree bend) Video from 33 to 65 feet was taken from the outfall, starting at CB-3, towards CB-4, so footage for the 33 to 65 feet segment is in reverse with 0 feet being at the outfall of CB-3 and 33 feet being 32 feet being the end of the blockage, located at 33 feet from CB-4. An excavation was conducted at the 90-degree elbow to unplug the pipe. Once the pipe was exposed, cracks were noted at the 90˚ elbow and also just north of the handicap ramp. Soil samples were collected at the two locations where the cracks were observed in the 5-inch diameter clay pipe (one near the 90˚ elbow and another 5.5 feet downstream of the 90˚ elbow). The clay pipe was cut so that the two cracks and the plugged section of pipe were removed and replaced with new CPVC pipe and fittings. The blockage at the 90-degree elbow was the result of a spray paint can cap. Approximately 47 feet east of CB-3 a line beginning at CB-6 junctions into SDL-3. The junction was exposed and soil samples were collected (SD-44).	1. CB-4 2. CB-3 3. CB-2 4. SD-03 5. SD-02 6. CB-5 (possibly) 7. CB-6 (possibly)	**Locations:** CB-1, -3 and -5 (no sediment in CB-2 and -4) **Metals:** antimony, barium, cadmium CrVI, CrT, copper, iron, lead, mercury, molybdenum, nickel, zinc **Organics:** PAH high molecular weight, benzo(a)pyrene equivalents, TPH-diesel	**Locations:** **SD-02 and -03** **Metals:** barium, copper, CrT, CrVI, lead, mercury, molybdenum, zinc **Organics:** PAH High Molecular Weight, PAH Low Molecular Weight, benzo(a)pyrene, TPH-diesel **Locations:** **SD-OS34, SD-OS34A, SD-OS36, and SD-OS44** **Metals:** antimony, barium, cadmium, copper, CrT, CrVI, cobalt, lead, mercury, molybdenum, nickel, thallium, zinc **Organics:** PAH High Molecular Weight, TEQ-human, TEQ-avian, and TEQ-mammal total polychlorinated biphenyls (PCBs), Aroclor 1254	**Metals:** barium, CrVI, CrT, copper, lead, molybdenum, nickel, selenium **Organics**: TPH-diesel, TPH-motor oil, benzo(a)pyrene equivalents
SDL-3 Segment B	5	20	Red Clay	Elbow joints at 12.10 and 16.1 "Y" joint at 19.9	Pipe begins at Catch Basins 1 and connects to Strom Drain Line 3 – Segment C. A small amount of debris at 7.11 feet Approximately 14 feet east from CB-1, an offset was observed. Samples were collected above and below the noted offset in the pipe. The depth of the pipe was approximately 44 inches below the ground surface. The clay pipe and joint appeared to be in good condition at the location of the offset.	1. CB-1 2. SD-03 3. SD-02			
SDL-3 Segment C	8	94	Red Clay	CB-2 from 2 to 4.8 "Y" joint at 36.7	From CB-5, the storm drain line goes into a utility trench (9.7 to 14.5 feet), and then goes to CB-2.	1. CB-5 2. CB-2			

Feature Number	Pipe Diameter (inches)	Approximate Total Length (feet)	Pipe Material and Length (feet)	Bends and Joints (feet)	Key Observations	Flow Pathway from Catchment Basin (CB) or Trench Drain Line (TDL) to Outfalls (SD samples)	Constituents Exceeding Screening Levels[a] in Catch Basin (CB) and Trench Drain (TD) Samples	Constituents Exceeding Screening Levels[a] in Soil (Outfall samples are bolded)	Constituents in Flow Test Water that Exceed Concentrations in Source Water
					No debris in pipe "Y" joint at 35.1 where SDL-3 – Segment B enters the line Piece of broken red clay pipe inside of red clay pipe at 88.5 feet and 90.9 feet	3. SD-03 4. SD-02			
CB-6	6	Unknown	8" Steel – 0 to 2 8" Red Clay – 2 to 25	Steel globe valve at 1-2	A valve 1 foot south of CB 6 was closed and locked when the catch basin was initially evaluated. The valve was unlocked and opened by TCS staff, but the pipe was completely filled with material. The fill material, which was oily and stained soil, was removed and the video survey was conducted. Soil samples were collected just south of the valve vault (SD-OS35A), above and below the pipe. The video survey continued 25 feet south where sediment or fill was encountered, stopping the video survey. The red clay line was oriented south and appeared to continue south towards SDL-3. A pothole was conducted in the visitor parking lot along the SDL-3 mainline and a "T" was found and samples were collected above and below the pipe (SD-44). The pipe appeared in good condition, based on observation from the pothole. It is assumed that the "T" is, or was, connected to CB-6 at one time. The line near CB-6 that traveled east then north from the "T" fitting in the vault was traced to the oil collection area north of CB-6.	None	**Location:** CB-6 **Metals:** barium, cadmium, copper, CrVI, CrT, lead, mercury, molybdenum, zinc **Organics:** PAH High Molecular Weight, PAH Low Molecular Weight, benzo(a)pyrene equivalents, TPH-diesel	**Locations: SD-OS35A, SD-OS35, and SD-OS44** **Metals:** cadmium, copper, CrVI, CrT, lead, mercury, thallium, zinc **Organics:** PAH High Molecular Weight, benzo(a)pyrene equivalents	--
SDL-4	4	13	Gray PVC	None	Pipe begins at CB-32; no sediment in catch basin Pipe free of debris Video was conducted from the outfall upstream towards CB-32, which was not identified in the field prior to the video survey for this pipe CB-32 was covered by dead plant debris	1. CB-32 2. SD-04	**Location:** CB-32 No sediment	**Location: SD-04** No exceedances	--
SDL-4B	5	48	Gray PVC – 0 to 41 Red Clay – 41 to 48	Horizontal Bend at 39	No catch basin found for this pipe; started video survey at outfall, so lengths are reported from outfall upstream Gravel and debris at 46 feet and blockage starting at 47.5 feet, survey terminated at 47.7 feet Blockage is likely associated with the decommissioning of the former trench drain across the road to the north (identified in the work plan Figure D-2)	None	--	**Location: SD-21** **Metals**: zinc **Organics**: none **Locations: SD-05, -06 and -22** **Metals**: lead, molybdenum, zinc **Organics**: none	--
SDL-5	8	34	Corrugated Steel	None	Pipe begins at CB-7, which is an open pipe above ground surface, no sediment present in catch basin Pipe free of debris, corrosion and rust Slight gap in pipe at 26 feet (note – the pipe sections were pushed back together after the video survey to try and limit the gap)	1. CB-7 2. SD-07	**Location:** CB-7 No sediment	**Location: SD-07** **Metals**: lead, zinc **Organics**: none	**Metals**: arsenic, barium, CrVI, CrT, molybdenum, selenium, vanadium, zinc

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SDL-6	8	52	Corrugated Steel	"T" joint at 37	Pipe begins at CB-8; sediment present in catch basin Blockage at "T" joint and could not advance camera down the line or into the adjoining unnamed branch to the south Some corrosion in the bottom of the pipe Palm tree roots in pipe at 36.1 feet, at the "T" joint Pipe is very corroded and broken 5-10 feet inside the TCS fence line, and storm water discharges (soil sample location SD-24). An upstream segment of video was conducted from this outfall location to the "T" joint	1. CB-8 2. SD-24 3. SD-08	**Location:** CB-8 **Metals**: copper, lead, mercury, molybdenum, zinc **Organics**: PAH High Molecular Weight, benzo(a)pyrene equivalents	**Locations: SD-08 and SD-24** **Metals**: copper, cadmium, CrVI, lead, molybdenum, zinc **Organics**: PAH High Molecular Weight, benzo(a)pyrene equivalents, dioxins and furans TEQ-mammal	**Metals**: arsenic, barium, cadmium, cobalt, copper, lead, CrVI, CrT, molybdenum, nickel, vanadium, zinc **Organics**: TPH-diesel, TPH-motor oil, benzo(a)pyrene equivalents
SDL-7	4	107	Green PVC – 0 to 1.5 Corrugated Steel – 1.5 to 2.5 PVC – 2.5 to 17.1 Unknown material pipe – at 17.1 PVC – 17.3 to 107	Elbow downhill at 15.1	Pipe begins at CB-9 and flows into and out of CB-10; sediment present in CB-9 only Debris in CB-10 Transition from PVC pipe to an unknown material at 17.1, very small portion of line, debris appears to be entering the transition piece from the top PVC joint is clean and in good condition	1. CB-9 2. CB-10 3. SD-10	**Location:** CB-9 (no sediment in CB-10) **Metals**: copper, lead, molybdenum, zinc **Organics**: PAH High Molecular Weight, benzo(a)pyrene equivalents, TPH-diesel	**Location: SD-10** **Metals**: CrVI, lead, mercury, zinc **Organics**: none **Location: SD-09** No exceedances	**Metals**: arsenic, barium, copper, lead, CrVI, CrT, molybdenum, **Organics**: TPH-diesel, TPH-motor oil
SDL-8	8	140	Red Clay – 0 to 7.4 PVC or Concrete – 7.4 to 39 Red Clay - 39 to 53.9 PVC – 53.9 to 98.9 Corrugated Steel – 98.9 to 140	Elbow at 39 to the north Elbow downhill at 41 Elbow downhill and to the north at 54	Pipe begins at CB-11; sediment present in catch basin Pipe back flows for the first 8 feet Cracks or scale present top of pipe at 9.1 feet and bottom of pipe at 12.8 feet and 29 feet Offset in clay pipe at 51.5 feet PVC joint at 58.3 feet joined, at least in part, by four screws Pipe transitions from underground to above ground on the slope outside of the fence line Approximately 57 feet from CB-11a transition from red clay pipe to PVC pipe was noted. The transition from red clay pipe to PVC was encapsulated in concrete and pipe was approximately 24 to 35 inches below the ground surface. Both the red clay pipe and gray PVC pipe appeared to be in good condition; however, during the flow test there was a leak at this location. Soil samples were collected below and above the pipe at the red clay pipe to PVC pipe transition. Near the outfall and adjacent to SDL-8, there is an abandoned parallel storm drain line. This abandoned line was assessed by video survey from the outfall up to the point where it goes into the hillside, where it was blocked by gravel (approximately 10 feet into the hillside). Soil samples were collected above and below the abandoned line immediately upslope of where the pipe exits the side of the hill (SD-27).	1. CB-11 2. SD-23 3. SD-12	**Location:** CB-11 **Metals**: antimony, arsenic, cadmium, cobalt, copper, CrT, iron, lead, manganese, mercury, molybdenum, nickel, selenium, zinc **Organics**: PAH High Molecular Weight, benzo(a)pyrene equivalents	**Location: SD-11, -11A, -12, and -23** **Metals**: copper, CrVI, CrT, lead, zinc **Organics**: Total PCBs, PAHs High Molecular Weight, Aroclor 1254, Aroclor 1260, TPH-diesel, benzo(a)pyrene equivalents, dioxins and furans TEQ-human, avian, and mammal **Locations: SD-OS37 and SD-27** **Metals**: cadmium, copper, lead, molybdenum, zinc **Organics**: Total PCBs, PAHs High Molecular Weight, Aroclor 1254, Aroclor 1260, benzo(a)pyrene equivalents	**Metals**: barium, copper, lead, CrVI, molybdenum, selenium, vanadium, zinc **Organics**: TPH-diesel, TPH-motor oil

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Feature Number	Pipe Diameter (inches)	Approximate Total Length (feet)	Pipe Material and Length (feet)	Bends and Joints (feet)	Key Observations	Flow Pathway from Catchment Basin (CB) or Trench Drain Line (TDL) to Outfalls (SD samples)	Constituents Exceeding Screening Levels[a] in Catch Basin (CB) and Trench Drain (TD) Samples	Constituents Exceeding Screening Levels[a] in Soil (Outfall samples are bolded)	Constituents in Flow Test Water that Exceed Concentrations in Source Water
SDL-8 (old)	8		Corrugated Steel		Pipe is not in service and was not video surveyed Pipe is on the south side of SDL-8 and approximately parallel Pipe may or may not be in place from when it was operational	1. CB-not determined 2. SD-11 and -11A 3. SD-23 4. SD-12	No catch basin		
SDL-9	8	215	White PVC – 0 to 24 Corrugated Steel – 24 to 215 Note that red clay pipe does not exist at CB-13 – it is white PVC pipe.	Elbow at 32.9 Gentle curve towards the south from 80 to 170	Pipe begins at CB-13 – 10-inch diameter PVC pipe; sediment present in catch basin Heavily corroded top and bottom of pipe 24.8 feet Corrosion and holes in bottom of pipe at 25.2 feet The pipe was assessed by video survey to locate the PVC-steel transition located approximately 26 feet from CB-13. The PVC to steel transition was encapsulated in concrete and the depth of pipe was 20 to 30 inches below ground surface. Samples were collected above and below the pipe. Steel pipe was corroded and a piece broke off while using the vac-truck. The pipe was repaired by wrapping the pipe with corrugated plastic pipe, plastic, a gravel blanket and then encapsulating the material with concrete. The pipe is separated at 76 feet, which is an above-ground section of the pipe. Soil sample SD-20 was collected at this location. Observations during flow testing indicates that some water discharges at this break, and some water continues down the SDL line and discharges through large holes in the bottom of the pipe at 89 to 92 feet. Debris in pipe at 105 feet	1. CB-13 2. SD-20 3. SD-13	**Location:** CB-13 **Metals**: copper, lead, molybdenum, zinc **Organics**: TPH-diesel, TPH-motor oil	**Locations: SD-13 and -20** **Metals**: CrVI, sodium, zinc **Organics**: benzo(a)pyrene equivalents **Location: SD-OS39** **Metals**: Lead **Organics**: total PCBs, Aroclor 1254	**Metals**: barium, copper, CrVI, molybdenum, selenium **Organics**: TPH-diesel, TPH-motor oil, benzo(a)pyrene equivalents
SDL-10	10	156	Green PVC	Elbow at 21.9	Pipe starts at CB-15; sediment present in catch basin Plant material at pipe joint at 65.8 feet, but no sign of cracked or broken pipe. The pipe was exposed and inspected during soil sampling at this location (below the 45˚ elbow) and appeared in good condition.	1. CB-15 2. SD-14	**Location:** CB-15 **Metals**: cadmium, copper, CrVI, CrT, lead, zinc **Organics**: Total PCBs, PAH High Molecular Weight, Aroclor 1254, benzo(a)pyrene equivalents, TEQ-human, avian, and mammal	**Location: SD-14** **Metals**: calcium, copper, CrVI, CrT, lead, molybdenum, zinc **Organics**: Total PCBs, TEQ-human, mammal and avian, PAH High Molecular Weight, benzo(a)pyrene equivalents, Aroclor 1254, Aroclor 1260, TPH-diesel **Location SD-OS33** No exceedances	--

Feature Number	Pipe Diameter (inches)	Approximate Total Length (feet)	Pipe Material and Length (feet)	Bends and Joints (feet)	Key Observations	Flow Pathway from Catchment Basin (CB) or Trench Drain Line (TDL) to Outfalls (SD samples)	Constituents Exceeding Screening Levels[a] in Catch Basin (CB) and Trench Drain (TD) Samples	Constituents Exceeding Screening Levels[a] in Soil (Outfall samples are bolded)	Constituents in Flow Test Water that Exceed Concentrations in Source Water
Abandoned line near SDL-10	8	Unknown, but likely 30 to 50	Corrugated Steal	None observed	On February 15, 2017, soil samples (SD-31) were collected above, below and from within an old, abandoned drain line that was located on the west-facing slope (from the upper to lower yard) below the B-Line Cooling Tower. The samples were collected approximately half way down the slope, where the abandoned pipe could still be identified but was very corroded with no structural integrity remaining. The pipe collapsed during sampling (at the sample location) and was completely filled with soil – this soil was collected in addition to samples collected above and below the pipe	--	--	**Location: SD-31** **Metals:** cadmium, copper, CrVI, CrT, lead, zinc **Organics:** benzo(a)pyrene equivalents, PAH High Molecular Weight, total PCBs, Aroclor 1254, Aroclor 1260, TEQ-human, avian, and mammal	--
SDL-11 Area A: Everything above CB-22 CB-28 - CB-30	8	66	White PVC	--	Pipe in good condition Sand in pipe at 28.3 feet Flow is from north to southwest from CB-28 to the CB-30.	1. CB-28 2. CB-30	**Location:** CB-28 **Metals**: copper, CrT, lead, mercury, molybdenum, nickel, zinc **Organics**: benzo(a)pyrene equivalents	No outfall	--
CB-31 – CB-30	4	17.5	White PVC	Downward elbows at 2 and 16.2	PVC pipe outfalls into pipe from CB-30 at 17.5 feet and flows from southwest to north, from CB-31 to CB-30. Pipe is in good condition and free of debris No sediment in catch basin	1. CB-31 2. CB-30	No sediment	No outfall	
CB-30 – CB-22	8	120	Red clay	90˚ elbow from south to west at 2 At 26 feet, pipe drops below mesh box then flows towards CB-22, but could not advance the camera beyond 27 feet due to the angled pipe downstream of the mesh box. It is assumed that a “Y” or “T” fitting from CB-26 is located at roughly 28, where we could not advance the camera A south facing “T” was observed at 22 east of CB-22	Pipe appears in good condition except cracks noted where metal box is located at 26 feet, which is where flow enters from CB-25. Flow is from east to west from CB-30 towards CB-22. An excavation was conducted to remove a section of clogged pipe east of CB-22 (debris sample location SD-OS42). During the excavation, it was determined that the outflow from the CB-30 section of pipe into CB-22 was lower in elevation than the outflow elevation from CB-22 towards CB-19 (flow is to the west). Therefore, debris or sediment originating upstream of CB-22 would accumulate in CB-22 and in the pipe upstream of CB-22, which resulted in a total blockage. The pipe was nearly 100% filled with imbricated, oily debris (a sample [SD-OS42, 3-4 ft bgs] of the debris inside the pipe was collected). The CB-22 basin was full of debris so that the entire pipe flowing into the CB was covered and not initially visible. An 8-foot section of pipe was removed, along with the oily debris inside the pipe. The pipe upstream of the excavation was cleared, 25 feet upstream towards CB-30, but physical limitations prevented clearance of the blockage further east. A video survey towards CB-30 was completed over the cleared 25-foot length. A south facing “T” was observed 22 feet east of CB-22. This “T” could not be excavated for observation because of the very close proximity to a gas pipeline between the compressor building and the A cooling tower.	1. CB-30 2. CB-22	**Location:** CB-30 **Metals**: cadmium, copper, CrVI, CrT, iron, lead, mercury, molybdenum, nickel, selenium, zinc **Organics**: PAH High Molecular Weight, benzo(a)pyrene equivalents	No outfall **Location: SD-OS42** **Metals:** arsenic, barium, cadmium, cobalt, cooper, CrT, lead, mercury, molybdenum, nickel, thallium, vanadium, zinc **Organics**: total PCBs, Aroclor 1254, TPH-diesel, TPH-motor oil, benzo(a)pyrene equivalents, PAH High Molecular Weight, Di-n-butyl phthalate	

Feature Number	Pipe Diameter (inches)	Approximate Total Length (feet)	Pipe Material and Length (feet)	Bends and Joints (feet)	Key Observations	Flow Pathway from Catchment Basin (CB) or Trench Drain Line (TDL) to Outfalls (SD samples)	Constituents Exceeding Screening Levels[a] in Catch Basin (CB) and Trench Drain (TD) Samples	Constituents Exceeding Screening Levels[a] in Soil (Outfall samples are bolded)	Constituents in Flow Test Water that Exceed Concentrations in Source Water
CB-25 - SDL-11	4	3.0	Gray PVC Mesh Box	Box with a mesh top, and a "T" from 4" line from above, that is coming from CB-25.	Flow testing indicated that water leaks around the box once the pipe backed up with water. Water backed up in the pipe due to a blockage located east of CB-22 (see description above). Soil samples were collected above and below the pipe just upstream of the mesh box (SD-29), where flow from CB-25 would enter the main line. No sediment in CB-25	1. CB-25 2. Into the mainline downstream of CB-30, upstream of the CB-26 "T"	No sediment	No outfall **Location: SD-29** No exceedances	
CB 27 – CB-26	8	15.9	White PVC	--	Pipe in good condition No debris in pipe Flow is from north to southwest from CB-27 to CB-26. Pipe ends at CB-26	1. CB-27 2. CB 26	**Location:** CB-27 **Metals**: copper, CrT, lead, molybdenum, zinc **Organics**: benzo(a)pyrene equivalents, TPH-diesel	No outfall	
CB-26 - SDL-11	6	~50	Red clay	It is assumed that a "Y" or "T" fitting from CB-26 is located at approximately 28, where the camera could not be advanced.	Pipe in good condition Sediment in CB-26 Blockage in pipe extending to the southwest at 36 feet It is assumed that this pipe is plumbed into the SDL-11 main line, downstream (or west) of the CB-25 mesh box junction.	1. Southwest (from CB 27) 2. CB-26 3. Southwest (to SDL-11)	**Location:** CB-26 **Metals**: copper, CrVI, CrT, lead, mercury, molybdenum, nickel, zinc **Organics**: PAH High Molecular Weight, benzo(a)pyrene equivalents	No outfall	
SDL-11 Area B Below CB-22 in Upper Yard	8	200 from CB-22 to CB-19 ~300 from CB-19 to outfall (SD-15)	From CB-22 (which is part of the SDL-11 mainline): Red clay – 0 to 22 (small offset at 22) White PVC – 22 to 28 Red clay – 28 to 35 Gray PVC – 35 to 66 39 – "T" from CB-21 line 41 – "T" from south (TD-3 line) Red clay – 66 to 71 72 – "Y" Fitting (from CB-20) 6" White PVC – 73 to 74 Grey CPVC – 74 to 79 (installed on December 15, 2016) 76 – "T" from 4" PVC line to the south (this "T" removed on December 15, 2016) White PVC – 79 to 83	From CB-22 39 – "T" from CB-21 line 41 – "T" from south (maybe TD-3) 72 – "Y" Fitting (from CB-20) 76 "T" from 4" PVC line to the south (this "T" removed on December 15, 2016) 200 – CB-19	A soil sample was collected from CB-22 after the deeper metal grate was cut and removed. This had blocked access to this catch basin during previous investigations. Video surveying displayed a blockage 74 feet downstream of CB-22. This location was 2 feet downstream of where the CB-20 line was plumbed into the mainline. The area was excavated to remove the blockage. Within the excavation, three pipes were encountered that all joined the mainline. Samples were collected below a 90-degree fitting and below the pipe line and fittings. Video surveys were conducted in all four directions from the cut pipes in the excavation. Approximately 2 feet downstream from the excavation to CB-19 the PVC pipe transitioned to 8" red clay pipe, then sloped downhill. The pipe between the bottom of the slope and CB-19 was full of debris (sand and gravel). The video camera entered CB-19 but could not be advanced beyond it. Several cracks were observed at the bottom of the steep, downhill portion of the line (from the upper yard to lower yard). Soil samples (SD-41) were collected above the pipe and next to the pipe, where the cracks were observed in the lower yard. When the pipe was daylighted for soil sample collection, the pipe fitting from steep to horizontal was observed to be encased in concrete. Not video surveyed north of CB-19. The camera did enter the CB-19 box from the SD-40 excavation video survey. Catch basin is not visible at ground surface, but was identified as a junction point for the upper and lower portions of SDL-11. The camera could not be	1. CB-22 2. CB-21 3. TD-3 4. CB-20 5. CB-19	**Locations:** CB-17, CB-20, CB-21, CB-22, and TDL-3 (no sediment in TDL-2 and CB-18 and -19 were not accessible) **Metals**: cadmium, copper, CrT, lead, mercury, molybdenum, nickel, zinc **Organics**: benzo(a)pyrene equivalents, PAH High Molecular Weight, total PCBs, Aroclor 1254, Aroclor 1260	**Location: SD-15** **Metals**: none **Organics**: TEQ-avian and mammals **Locations: SD-28, SD-OS30, SD-OS38, SD-OS40, SD-OS41 and SD-OS43** **Metals:** CrVI, CrT, copper, lead, molybdenum, thallium, zinc **Organics**: Total PCBs, Aroclor 1254, benzo(a)pyrene equivalents, TPH-diesel, TEQ-mammal	

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			Red clay – 83 to 200 200 – CB-19 202 to 350 (no video)		guided through this buried CB, which was potentially covered during construction of the new A line scrubber The video survey of the 4-inch line (south from the "T") in the excavation, was blocked 4 feet west of the 90˚ fitting. The blockage was cleared and it was determined that the 4-inch pipe drained storm water that would collect in the concrete trench/vault, located to the south of the SD-40 excavation. The pipe starts in CB-21, and within the catch basin, the PVC pipe is within at 10-inch diameter red clay pipe. There was a 1-2 inch gap between one side of the inner PVC pipe and outer red clay pipe. Sediment was present in CB-21. Soil samples (SD-38) were collected on the west (or downstream) side of CB-21 above and below the pipe. Concrete was used to encase the white PVC pipe that was inside of the red clay pipe. Compressed air was used to test for leaks between the two pipes and air did not leak between the two pipes. In order to locate the “T” fitting that was noted in a previous video from the SDL-11 mainline to TD-3, an excavation was conducted 17 feet south of the “T” of the main line. Soil samples (SD-43) were collected south of the SDL-11 mainline near where the TD-3 line “T” was plumbed to the SDL-11 mainline. An excavation was completed to locate the TD-3 line and to examine the pipe. The pipe was cut to gain access to video survey. A video was conducted upstream towards TD-3, a total length of 93 feet and downstream towards SDL-11 mainline, 17 feet. The end of the pipe near TD-3 was located roughly 5 feet northwest of the west side of the trench. The pipe was “broken” on the end, meaning not a clean cut or break and was full of sediment, which was sampled as part of SD-30 sample. Multiple potholes were completed between the SD-30 sample location and the southern point the video camera reached, in order to examine the pipe and to find the end of the pipe (at SD-30). The pipe was in good condition.				
	8	18 from CB-21 to the SDL-11 main line	White PVC	“Y” Joint at 47.6	Pipe starts at CB-21; sediment present in catch basin Defect or dent in pipe, but not broken at 26.3 feet “Y” joint at 47.6 where connects into SDL-11 – Segment B Rock and gravel blockage at 52.5 feet				
	8	185 from TD-3 to SDL-11 mainline	From TD-3 towards SDL-11 mainline Red clay pipe is missing for the first 5 feet (between trench and located pipe) Red clay – 0 to 184 White PVC – 184 to 185 (“T” fitting into mainline at 185)						
	8	47.6 from CB-20 to	White PVC						

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		the 11 main line							
SDL-11 Segment C	10	46 from TD-2, to CB-17	Green PVC from TD-2 to CB-17, 46.5 feet 3" white PVC from CB-18 to outfall into the Green PVC pipe 30 feet downstream of TD-2	None between TD-2 and CB-17 Unknown between CB-18 and green PVC pipe	Video is upstream from CB-17 to TD-2; sediment present in CB-17 only Pipe begins at Trench Drain 2 and flows into and through CB-17 Outfall from CB-18 (a 3 inch white PVC pipe) connects to this segment at 31.1 feet. Did not video the portion of pipe between this connection and CB-18 due to not being able to open CB-18	1. TD-2 and CB-18 2. CB-17 3. SD-15			
SDL-11 Segment D	10	14 from CB-17 to 11 main line, an additional 78 (92 total) of main line video downstream , but a total of 180 to outfall	Red Clay – 0 to 52 White PVC – 52 to 132	"Y" joint at 14.1 Elbow at 70.1	Pipe begins at CB-17; sediment present in catch basin "Y" joint connecting to SDL-11 – Segment B Grout intruding into pipe at 5.1 feet and 11.4 feet Pipe is offset at the red clay pipe to PVC transition. Soil samples were collected above and below the SDL-11 where the offset was noted (SD-28). PVC joint at 92 feet, camera could not make it through the joint, finished the survey by going upstream from outfall	1. CB-17 (from TDL-2 and CB-18) 2. SD-15			
SDL-11 Segment E	10	67 from outfall upstream	White PVC	22.5 elbow to the south 22.5 elbow to the east	Video is from the outfall upstream and redundant with the Segments A-D The upper 40 feet of pipe was not video surveyed between the outfall and the lower extent of the Segment D survey				
SDL-12	10	97	Blue PVC	Downward elbow at 29.3 Elbow to the north at 46	Pipe begins at Trench Drain 4 and flows into and through CB-16; sediment was present in the catch basin and trench drain Video surveying was conducted upstream from CB-16 towards Trench Drain 4, then downstream from CB-16 to the outfall Pipe is free of debris	1. TDL-4 2. CB-16 3. SD-16	**Locations:** TDL-4 and CB-16 **Metals**: copper, lead, molybdenum, zinc **Organics**: benzo(a)pyrene equivalents	**Location: SD-16** **Metals**: manganese **Organics**: none **Location: SD-17** **Metals**: lead, zinc **Organics**: none	**Metals**: arsenic, copper, lead, molybdenum, nickel, selenium, vanadium **Organics**: TPH-diesel, TPH-motor oil
SDL-13a	6 5.5	118	6" Corrugated Steel 5.5" Gray PVC inside the Steel Pipe starting at 1 foot	None	No catch basins associated with this pipe; however, this pipe was potentially associated with CB-24 and may have been disconnected or removed during construction in this area (see CB-24 item below) Video surveying was conducted from the outfall in the upstream direction Sand and gravel blockage encountered at 118 feet	None	--	**Location: SD-18** **Metals**: copper, zinc **Organics**: none	--
SDL-13b	8	125	8" Corrugated Steel - 0 to 47 8" White PVC – 48.5 125	Downward elbow at 42 Flow is through CB-23 at 47 90° upward elbow at 122.5	CB-23 does not represent the upstream origin of the line, but no additional catch basin upstream of CB-23 was observed. The video survey was conducted from the outfall in the upstream direction through CB-23 Sediment present in CB-23 CB-23 located at 46.4 feet	1. CB-23 2. SD-18	**Location:** CB-23 **Metals**: copper, lead, zinc **Organics**: none	**Location: SD-18** **Metals**: copper, zinc **Organics**: none **Location:** SD-19 **Metals**: mercury **Organics**: none	**Metals**: arsenic, barium, CrVI, CrT, molybdenum, selenium, vanadium, zinc **Organics**: TPH-diesel, TPH-motor

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Feature Number	Pipe Diameter (inches)	Approximate Total Length (feet)	Pipe Material and Length (feet)	Bends and Joints (feet)	Key Observations	Flow Pathway from Catchment Basin (CB) or Trench Drain Line (TDL) to Outfalls (SD samples)	Constituents Exceeding Screening Levels[a] in Catch Basin (CB) and Trench Drain (TD) Samples	Constituents Exceeding Screening Levels[a] in Soil (Outfall samples are bolded)	Constituents in Flow Test Water that Exceed Concentrations in Source Water
					90° upward elbow encountered at 122.5 feet. The camera could not be advanced past this elbow at 125 feet, potentially because the pipe is capped				oil, Aroclor 1254, Aroclor 1260
SDL-14	11	59	Corrugated Steel	Downward elbow at 21, 32 and 34	The upstream origin of the pipe in a ditch and is not plumbed to a catch basin Corrosion with debris in bottom portion of pipe at 19 feet	1. Ditch 2. SD-25	--	**Location: SD-25** **Metals**: mercury **Organics**: Total PCBs, Aroclor 1254	**Metals**: arsenic, barium, copper, CrVI, CrT, molybdenum, selenium, vanadium, zinc **Organics**: TPH-diesel, TPH-motor oil, Aroclor 1254, dioxins and furans TEQ-mammal
SDL-15	10	--	Red Clay Pipe	--	Not video surveyed Catch basin does not exist. The pipe extends out of the hillside and is blocked with sand and gravel debris	None	--	**Location: SD-26** **Metals**: copper, lead, zinc **Organics**: Total PCBs, TEQ-mammal and avian	--
Unlocated or Decommissioned Catch Basins (CBs) and Storm Drain Lines									
CB-14		--	--	--	Could not locate in the field	--	--	--	--
CB-24	--	--	--	--	Catch basin was not located in the field and may have been removed during construction of valve nest	--	--	--	--
Isolated Upper Yard Catch Basins and Drain Lines									
CB-12	12	4	PVC	--	Not video surveyed No sediment in catch basin 2 foot long piece of pipe that flow west under the curb and outfalls onto the asphalt	1. CB-12 2. TCS road (paved)	No sediment	Paved outfall (asphalt)	--

Notes:
[a] Applicable background values, ecological comparison values, and residential human health screening levels were used to screen data
-- Not available or no samples collected
CrVI hexavalent chromium
CrT total chromium
PAH polycyclic aromatic hydrocarbons
PCB polychlorinated biphenyl
PVC polyvinyl chloride
TCS Topock Compressor Station
TEQ dioxins and furans toxicity equivalent quotient
TPH total petroleum hydrocarbons

TABLE 3-43
Summary of Industrial Floor Drain Survey
RFI/RI Report, Volume 3 – Soil Investigation
PG&E Topock Compressor Station, Needles, California

Feature	Pipe Diameter (inches)	Approximate Total Length (feet)	Material and Length of Material (feet)	Bends/Joints and Location (feet)	Observations	Constituents Exceeding Screening Levels[a] in Soil
Floor Drain 1	--	--	--	--	Not surveyed	--
Floor Drain 2	Unknown	Unknown	Steel	None	Standing water at 1.7 feet Blockage and narrow pipe at 3.2 feet, end of survey	--
Floor Drain 3	--	--	--	--	Not surveyed	--
Floor Drain 4	Unknown	Unknown	Steel	None	Pipe appears corroded at 2.4 feet 100 percent blockage at 2.3 feet, end of survey	--
Floor Drain 5	Unknown	Unknown	Steel	Elbow at 2.3 feet	Pipe appears corroded at 2.3 feet Diameter of pipe narrows and camera could not pass, corrosion at 11.9 feet, end of survey	--
Floor Drain 6	--	--	--	--	Not surveyed	--
Floor Drain 7	Unknown	Unknown	Red Clay – 1.5 to unknown	None	Two aboveground pipes discharge into this floor drain: 1) pipe trench sump located near west side of Visitor's Parking Lot, and 2) pipe from the jacket water pumps and cooling tower Liquid in pipe at 1.5 feet Connects into main drainage lint at 1.7 feet and heavy sludge present 1.7 feet Blockage due to heavy sludge at 29 feet, end of survey	--
Floor Drain 8	4	Unknown	Red Clay – 0 to unknown	Elbow joint at 12.6	Pipe free of debris and sludge Connects into main drainage line at 12.6 feet Camera covered in heavy sludge in main line at 14.5 feet, end of survey	--
Floor Drain 9	4	Unknown	Red Clay – 0 to unknown	Elbow joint at 11.1	Pipe free of debris and sludge Grout intruding at pipe joint at 11.4 feet Connects into main drainage line at 11.9 feet Camera covered in heavy sludge in main line at 13.9 feet, end of survey	--
Floor Drain 10	4	Unknown	Red Clay – 0 to unknown	Elbow joint at 9.1	Pipe free of debris and sludge Connects into main drainage line at 9.1 feet Camera covered in heavy sludge in main line at 14.7 feet, end of survey	--
Floor Drain 11	Unknown	Unknown	Unknown	None	Pipe free of debris and sludge Empty water bottle encountered at 11 feet, end of survey	--
Floor Drain 12	Unknown	Unknown	Unknown	None	Pipe free of debris and sludge Empty water plastic bag was encountered at 9.2 feet; this bag was pushed to 13 feet end of survey to prevent the bag from entering the main line.	--
Floor Drain 13	Unknown	Unknown	Unknown	None	Pipe free of debris and sludge Connects to main line at 12.8 feet and camera got covered in heavy sludge, end of survey	--
Floor Drain 14	Unknown	Unknown	Unknown	None	Debris present in pipe 6.9 feet and 9 feet 100 percent blockage at 9.8 feet, end of survey	--
Floor Drain 15	Unknown	Unknown	Unknown	Elbow joint at 15.8	Pipe free of debris and sludge Connects to main line at 20.5 feet and camera got covered in heavy sludge, end of survey	--
Floor Drain 16	Unknown	Unknown	Unknown	Unknown	100 percent blockage at 1 foot, end of survey	--
Floor Drain 17	Unknown	Unknown	Unknown	Elbow joint at 16.1	Debris encountered at 8 feet Connects to main line at 19.8 feet, end of survey Soil samples were collected below the junction of floor drain 17 and the main line (soil sample location AOC20-OS16) at 0.5, 3, 6, and 9.5 (below red clay pipe) feet bgs. Top of main pipe was approximately 8 feet bgs.	**Metals**: hexavalent chromium, total chromium, copper, lead, molybdenum, and zinc

TABLE 3-43
Summary of Industrial Floor Drain Survey
RFI/RI Report, Volume 3 – Soil Investigation
PG&E Topock Compressor Station, Needles, California

Feature	Pipe Diameter (inches)	Approximate Total Length (feet)	Material and Length of Material (feet)	Bends/Joints and Location (feet)	Observations	Constituents Exceeding Screening Levels[a] in Soil
Floor Drain 38	Unknown	Unknown	Unknown	Unknown	100 percent blockage at 4.3 feet, end of survey	--
Floor Drain 39	Unknown	Unknown	Unknown	Unknown	Soil samples were collected below the junction of the line from floor drain 39 and the main line (soil sample location AOC20-OS09) at 0.5 and 5 (below pipe junction) feet bgs.	**Metals**: hexavalent chromium, total chromium, copper, lead, molybdenum, and zinc **Organics**: Aroclor 1254 and Aroclor 1260
Floor Drain 41	Unknown	Unknown	Unknown	Unknown	Soil samples were collected below the junction of floor drain 41 and the main line (soil sample location AOC20-OS12) at 0.5, 3, and 6 (below pipe junction) feet bgs.	**Metals**: hexavalent chromium, total chromium, copper, lead, molybdenum, and zinc **Organics**: Benzo(a)pyrene equivalents, Aroclor 1254, and Aroclor 1260
Floor Drain 42	Unknown	Unknown	Unknown	Unknown	Soil samples were collected below the junction of floor drain 42 and the main line (sample location AOC20-OS13) at 0.5, 3, and 6 (below pipe junction) feet bgs.	**Metals**: hexavalent chromium, total chromium, copper, lead, nickel, and zinc
Floor Drain 44	4	29	Steel 0 to 12.8 Gray PVC 12.8 to 28.11	Elbow joint at 18.4 Elbow joint at 27.6	Pipe ends at pipe trench sump located on the west side of the Visitor's Parking Lot Debris encountered at 4.3 feet 70 percent blockage with debris at 8.4 feet and 11.1 feet Transition to gray PVC pipe at 12.8 feet Connects to sump at 28.9 feet No leaks detected The junction between the steel pipe and gray PVC pipe was located within the concrete slab of the wash rack foundation, so daylighting of the pipe was not feasible.	--
Manhole 1	8 10	Unknown	Red Clay	None	Downstream pipe had stagnant liquid, 90 percent blockage at 3.6 feet Upstream pipe had stagnant liquid, 90 percent blockage at 3.7 feet In the direction of Cleanout 2. The junction of floor drain 5 and the main line was clear; however, debris was noted. Soil samples were collected below the floor drain lateral and main line (soil sample location AOC20-OS14) at 0.5, 3, and 7 (below pipe junction) feet bgs.	None
Manhole 2	8	Unknown	White PVC - unknown Red Clay – unknown	None	Sludge was immediately present in the downstream pipe, heavy build up started at 5 feet Unknown when downstream pipe transitioned to red clay Sludge became too thick to proceed downstream at 40.8 feet Upstream pipe starts off as white PVC and transitions to red clay at 5 feet and sludge is present Debris and sludge in the pipe at 21 feet Heavy sludge/oil on camera lens, end of survey	--
Manhole 3 – Downstream Pipe	8	165	Green PVC 0 to 125 Black Steel 125 to 165	Elbow joint at 34.3 Elbow joint at 119 Elbow joint at 123 Elbow joint at 132 Elbow joint at 164.6	Valve visible above the grit tank at 160.9 feet Connects to grit tank at 164.6 feet Soil samples were collected above and below a PVC/Steel/PVC flange spool transition (soil sample location AOC20-OS18) at 0.5 and 3.5 (below pipe fitting) feet bgs. The spool, flange, pipe, and PVC pipe were all in good condition with no apparent leaks. Attempted to collect soil samples at the 90-degree elbow where line goes from green PVC to steel 90-degree elbow fitting, toward the grit tank. Cut asphalt and potholed location but could not expose pipe or collect soil samples due to pipe and fitting being completely encased in a large block of concrete, preventing sampling beneath.	None

TABLE 3-43
Summary of Industrial Floor Drain Survey
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PG&E Topock Compressor Station, Needles, California

Feature	Pipe Diameter (inches)	Approximate Total Length (feet)	Material and Length of Material (feet)	Bends/Joints and Location (feet)	Observations	Constituents Exceeding Screening Levels[a] in Soil
Manhole 3 – Upstream Pipe	8	Unknown	Blue PVC 0 to 10 Red Clay 10 to unknown	None	Outlet at 40.1 feet where main line flows north along the west side of the compressor building and oil on camera lens Increasing sludge at 46.2 feet and heavy sludge at 50.1 feet About half the pipe is filled with sludge at 54.4 feet Sludge blocked pipe at 56.4 feet, end of survey Soil samples were collected at the junction of the main line west of the compressor building and the main line from manhole 2, which is just upstream of manhole 3. Samples were collected above and below the junction (soil sample location AOC20-OS21) at 0.5, 3, 6, and 9 (below pipe junction) feet bgs.	**Metals**: hexavalent chromium, total chromium, copper, lead, molybdenum, and zinc
Cleanout 1	Unknown	Unknown	Unknown	Unknown	100 percent blocked at 2.5 feet, end of survey	--
Cleanout 2	Unknown	Unknown	White PVC – unknown Red Clay – unknown	"T" joint at 32.9 "T" joint at 33.3	Liquid and debris present in pipe at 9.9 feet, no debris at 31.7 feet "T" joint where CO_2 line discharges at 32.9 feet "T" joint where connects to main line at 33.3 feet Sludge, debris, and water present at 36.6 feet through 160 feet, end of survey A flow test was conducted from FD-1, and flow goes from this floor drain to Cleanout 2. A leak was discovered at a joint or junction of the line from FD-1/CO-2 and presumably the FD-3 line, during the flow test. Samples were collected below the leak (soil sample location AOC20-OS08) at 0.5 and 5 (below pipe junction) feet bgs.	**Metals**: cadmium, hexavalent chromium, total chromium, copper, lead, molybdenum, nickel, and zinc
Cleanout 3	6	Unknown	Gray PVC 0 to 12.6 Blue PVC 12.6 to unknown	"T" joint at 91.1	Junction at 54.1 feet where pipe from Floor Drain 39 enters, which is the south floor drain in the north cooling tower "T" joint at top of pipe at 91.1 feet; could not find access at the surface End of survey at 140 feet	--
Cleanout 4	6	Unknown	Gravy PVC 0 to unknown Blue PVC unknown	Elbow joint at 271	Elbow joint at 271 feet at location of Clean Out 5 End of survey at 273.1 feet	--
Cleanout 5	Unknown	Unknown	Blue PVC	Elbow joint at 1.2 Elbow joint 35 "T" joint 44.4	Unknown pipe material until connects to blue PVC main line at 1.8 feet Pipe is full of water and debris at 141 feet End of survey at 160 feet Soil samples were collected downstream of CO-5 under a "T" fitting (soil sample location AOC20-OS11) at 0.5, 3, and 7 (below "T" fitting) feet bgs.	None
Cleanout 6/7	Unknown	Unknown	Blue PVC	Elbow joint at 0.1 "T" joint 6.6 "4-way" junction 56.5	Unknown pipe material until connects to blue PVC main line at 3.7 feet "T" joint at 6.6 feet where north floor drain of the south cooling tower discharges "4-way" junction at 56.5 feet where the south floor drain of the south cooling tower discharges into main line and then flows to the oil water separator View of Cleanout 7 at 58.5 feet and main line capped at 61.5 feet	--

Notes:

[a] Applicable background values and commercial human health screening levels were used to screen data.

-- Not available or no samples collected

bgs below ground surface

TABLE 3-44

Total Threshold Limit Concentration Exceedances

RFI/RI Report, Volume 3 - Soil Investigation

Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Location	Date	Depth	Sample Type	Analyte	Factor of Exceedance	Concentration	Screening Level	Units
SWMU 1								
SWMU1-1	10/16/2008	5 - 6	N	Chromium, total	1.28	3200	2500 (TTLC)	mg/kg
SWMU1-WP-7	10/6/2008	0 - 0.5	N	Chromium, total	1.04	2600	2500 (TTLC)	mg/kg
AOC 1								
Old Well-BCW-1	9/11/2013	7 - 8	N	Chromium, total	1.68	4200	2500 (TTLC)	mg/kg
Old Well-BCW-2	9/11/2013	4 - 5	N	Chromium, total	1.76	4400	2500 (TTLC)	mg/kg
TCS4-E	3/1/2016	4 - 5	N	Chromium, total	1.24	3100	2500 (TTLC)	mg/kg
TCS4-E	3/1/2016	4 - 5	FD	Chromium, total	1.36	3400	2500 (TTLC)	mg/kg
TCS4-N	3/1/2016	4 - 5	N	Chromium, total	1.36	3400	2500 (TTLC)	mg/kg
TCS4-N	3/1/2016	5 - 6	N	Chromium, total	1.32	3300	2500 (TTLC)	mg/kg
AOC 10								
L-2	2/20/2003	2	N	Chromium, total	1.34	3360	2500 (TTLC)	mg/kg
L-2-3	3/5/2003	- 2	N	Chromium, total	1.10	2740	2500 (TTLC)	mg/kg
MW-58BR_S	1/29/2009	1.5 - 2	N	Chromium, total	1.60	4000	2500 (TTLC)	mg/kg
AOC10-20	2/17/2016	0 - 0.5	N	Chromium, Hexavalent	5.40	2700	500 (TTLC)	mg/kg
AOC10-20	2/17/2016	0 - 0.5	N	Chromium, total	1.12	2800	2500 (TTLC)	mg/kg
AOC10-21	2/25/2016	0 - 0.5	N	Copper	1.24	3100	2500 (TTLC)	mg/kg
AOC10-21	2/25/2016	0 - 0.5	N	Mercury	1.75	35	20 (TTLC)	mg/kg
AOC 13								
SD-OS34	12/2/2016	0.5 - 1	N	Mercury	1.25	25	20 (TTLC)	mg/kg
SD-OS34	12/2/2016	0.5 - 1	N	Lead	1.10	1100	1000 (TTLC)	mg/kg
AOC13-Debris	4/26/2017		N	Chromium, total	1.52	3800	2500 (TTLC)	mg/kg
AOC13-Wood	4/26/2017		N	Chromium, total	3.88	9700	2500 (TTLC)	mg/kg
SD-OS42	7/17/2017	3 - 4	N	Lead	1.10	1100	1000 (TTLC)	mg/kg
AOC 14								
AOC14-19	2/17/2016	2 - 3	N	Lead	1.60	1600 J	1000 (TTLC)	mg/kg
AOC14-16W	2/22/2016	2 - 3	N	Mercury	9.00	180	20 (TTLC)	mg/kg
AOC14-16W	2/22/2016	5 - 6	N	Mercury	3.60	72	20 (TTLC)	mg/kg
AOC 19								
SS#6	1/30/2006	0	N	Chromium, total	1.72	4300	2500 (TTLC)	mg/kg
SS#7	1/30/2006	0	N	Chromium, total	1.40	3500	2500 (TTLC)	mg/kg
SS#1	1/30/2006	0	N	Chromium, total	1.20	3000	2500 (TTLC)	mg/kg
SS#3	1/30/2006	0	N	Chromium, total	1.12	2800	2500 (TTLC)	mg/kg
Catch Basins								

TABLE 3-44
Total Threshold Limit Concentration Exceedances
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Pacific Gas and Electric Company Topock Compressor Station, Needles, California

CB-6-01	11/7/2015	0	N	Lead	1.40	1400	1000 (TTLC)	mg/kg

FD = field duplicate
J = concentration estimated by laboratory or data validation
mg/kg = milligrams per kilogram
N = primary sample
TTLC = Total Threshold Limit Concentration

Table 3-45
Updated Screening Levels
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte Group	Analyte	Units	DTSC CSL Nov 2018	DTSC CSL Nov 2021	Residential DTSC-SL Jan 2018	Residential DTSC-SL Jan 2021	RWQCB ESLs 2016	RWQCB ESLs 2019
Metal	Beryllium	mg/kg	210	230	15	16	n/a	n/a
Metal	Cadmium	mg/kg	7.3	780	5.2	7.1	n/a	n/a
Metal	Chromium, Hexavalent	mg/kg	6.3	6.2	--	--	n/a	n/a
Metal	Chromium, total	mg/kg	170,000	1,800,000	36,000	120,000	n/a	n/a
Metal	Mercury	mg/kg	4.5	4.4	--	--	n/a	n/a
Metal	Nickel	mg/kg	3,100	11,000	490	820	n/a	n/a
Metal	Silver	mg/kg	1,500	5,800	--	--	n/a	n/a
Metal	Trivalent Chromium	mg/kg		1,800,000	0	120,000	n/a	n/a
Metal	Vanadium	mg/kg	1,000	5,800	--	--	n/a	n/a
CLP Inorganic	Manganese	mg/kg	6,900	26,000	--	--	n/a	n/a
PAH	1-Methyl naphthalene	µg/kg	73,000	30,000	18,000	9,900	n/a	n/a
PAH	2-Methyl naphthalene	µg/kg	3,000,000	1,300,000	240,000	190,000	n/a	n/a
PAH	Acenaphthene	µg/kg	45,000,000	23,000,000	3,600,000	3,300,000	n/a	n/a
PAH	Anthracene	µg/kg	230,000,000	130,000,000	18,000,000	17,000,000	n/a	n/a
PAH	Benzo (a) anthracene	µg/kg	21,000	12,000	--	--	n/a	n/a
PAH	Benzo (a) pyrene	µg/kg	2,100	1,300	--	--	n/a	n/a
PAH	Benzo (b) fluoranthene	µg/kg	21,000	13,000	--	--	n/a	n/a
PAH	Benzo (k) fluoranthene	µg/kg	210,000	130,000	--	--	n/a	n/a
PAH	Chrysene	µg/kg	2,100,000	1,300,000	--	--	n/a	n/a
PAH	Dibenzo (a,h) anthracene	µg/kg	2,100	310	110	28	n/a	n/a
PAH	Fluoranthene	µg/kg	30,000,000	18,000,000	--	--	n/a	n/a
PAH	Fluorene	µg/kg	30,000,000	17,000,000	2,400,000	2,300,000	n/a	n/a
PAH	Indeno (1,2,3-cd) pyrene	µg/kg	21,000	13,000	--	--	n/a	n/a
PAH	Naphthalene	µg/kg	17,000	6,500	3,800	2,000	n/a	n/a
PAH	Pyrene	µg/kg	23,000,000	13,000,000	--	--	n/a	n/a
TPH	TPH as diesel	mg/kg	1,100	1,219	230	255	230	255
TPH	TPH as gasoline	mg/kg	3,900	2,004	740	429	740	429
TPH	TPH as motor oil	mg/kg	140,000	179,692	11,000	12,033	11,000	12,033
Pesticide	4,4-DDD	µg/kg	9,600	6,200	--	--	n/a	n/a
Pesticide	4,4-DDT	µg/kg	8,500	7,100	--	--	n/a	n/a
Pesticide	alpha-BHC	µg/kg	360	240	--	--	n/a	n/a
Pesticide	alpha-Chlordane	µg/kg	1,500	500,000	440	36,000	n/a	n/a
Pesticide	beta-BHC	µg/kg	370	820	--	--	n/a	n/a
Pesticide	delta-BHC	µg/kg	370	1,300	--	--	n/a	n/a
Pesticide	Dieldrin	µg/kg	140	93	--	--	n/a	n/a
Pesticide	Endosulfan sulfate	µg/kg	7,000,000	3,200,000	--	--	n/a	n/a
Pesticide	Endrin	µg/kg	250,000	160,000	--	--	n/a	n/a
Pesticide	gamma-BHC	µg/kg	370	2,000	300	570	n/a	n/a
Pesticide	gamma-Chlordane	µg/kg	1,500	500,000	440	36,000	n/a	n/a
Pesticide	Methoxy chlor	µg/kg	4,100,000	2,600,000	--	--	n/a	n/a
Pesticide	Toxaphene	µg/kg	2,100	1,200	490	450	n/a	n/a
PCB	Aroclor 1016	µg/kg	27,000	17,000	4,100	4,000	n/a	n/a
PCB	Aroclor 1221	µg/kg	830	530	--	--	n/a	n/a
PCB	Aroclor 1232	µg/kg	720	490	--	--	n/a	n/a
PCB	Aroclor 1242	µg/kg	950	580	--	--	n/a	n/a
PCB	Aroclor 1248	µg/kg	950	580	--	--	n/a	n/a
PCB	Aroclor 1254	µg/kg	970	590	--	--	n/a	n/a
PCB	Aroclor 1260	µg/kg	990	600	--	--	n/a	n/a
PCB	Total PCBs	µg/kg	940	580	--	--	n/a	n/a
Dioxin and Furan	2,3,7,8-TCDD	ng/kg	22	18	--	--	n/a	n/a
SVOC	Pentachlorophenol	µg/kg	4,000	2,000	--	--	n/a	n/a
SVOC	1,2,4,5-Tetrachlorobenzene	µg/kg	350,000	150,000	23,000	17,000	n/a	n/a
SVOC	2,3,4,6-Tetrachlorophenol	µg/kg	25,000,000	16,000,000	--	--	n/a	n/a
SVOC	2,4-Dichlorophenol	µg/kg	2,500,000	1,600,000	--	--	n/a	n/a
SVOC	2,4-Dimethylphenol	µg/kg	16,000,000	11,000,000	--	--	n/a	n/a
SVOC	2,4-Dinitrophenol	µg/kg	1,600,000	1,100,000	--	--	n/a	n/a
SVOC	2,4-Dinitrotoluene	µg/kg	7,400	4,700	--	--	n/a	n/a
SVOC	2,6-Dinitrotoluene	µg/kg	1,500	990	--	--	n/a	n/a
SVOC	2-Chloro naphthalene	µg/kg	60,000,000	27,000,000	4,800,000	4,100,000	n/a	n/a
SVOC	2-Chlorophenol	µg/kg	5,800,000	3,900,000	390,000	340,000	n/a	n/a
SVOC	2-Methylphenol	µg/kg	41,000,000	26,000,000	--	--	n/a	n/a

Table 3-45
Updated Screening Levels
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Pacific Gas and Electric Company Topock Compressor Station, Needles California

Analyte Group	Analyte	Units	DTSC CSL Nov 2018	DTSC CSL Nov 2021	Residential DTSC-SL Jan 2018	Residential DTSC-SL Jan 2021	RWQCB ESLs 2016	RWQCB ESLs 2019
SVOC	2-Nitroaniline	µg/kg	8,000,000	5,200,000	--	--	n/a	n/a
SVOC	3,3-Dichlorobenzidene	µg/kg	--	--	1,200	450	n/a	n/a
SVOC	3-Nitroaniline	µg/kg	110,000	8,000,000	27,000	630,000	n/a	n/a
SVOC	4,6-Dinitro-2-methylphenol	µg/kg	66,000	42,000	--	--	n/a	n/a
SVOC	4-Chloro-3-methylphenol	µg/kg	82,000,000	53,000,000	--	--	n/a	n/a
SVOC	4-Chloroaniline	µg/kg	11,000	7,400	--	--	n/a	n/a
SVOC	4-Methylphenol	µg/kg	82,000,000	53,000,000	--	--	n/a	n/a
SVOC	4-Nitroaniline	µg/kg	110,000	74,000	--	--	n/a	n/a
SVOC	Acetophenone	µg/kg	120,000,000	55,000,000	7,800,000	6,000,000	n/a	n/a
SVOC	Atrazine	µg/kg	10,000	6,400	--	--	n/a	n/a
SVOC	Benzaldehyde	µg/kg	--	--	47,000	46,000	n/a	n/a
SVOC	Benzoic acid	µg/kg	3,300,000,000	2,100,000,000	--	--	n/a	n/a
SVOC	Benzyl alcohol	µg/kg	82,000,000	53,000,000	--	--	n/a	n/a
SVOC	bis (2-chloroethoxy) methane	µg/kg	2,500,000	1,600,000	--	--	n/a	n/a
SVOC	bis (2-ethylhexyl) phthalate	µg/kg	160,000	110,000	--	--	n/a	n/a
SVOC	Butylbenzylphthalate	µg/kg	1,200,000	780,000	--	--	n/a	n/a
SVOC	Caprolactam	µg/kg	400,000,000	260,000,000	--	--	n/a	n/a
SVOC	Dibenzofuran	µg/kg	1,000,000	650,000	73,000	66,000	n/a	n/a
SVOC	Diethyl phthalate	µg/kg	660,000,000	420,000,000	--	--	n/a	n/a
SVOC	Di-n-butyl phthalate	µg/kg	82,000,000	53,000,000	--	--	n/a	n/a
SVOC	Di-n-octyl phthalate	µg/kg	8,200,000	5,300,000	--	--	n/a	n/a
SVOC	Hexachlorobenzene	µg/kg	960	860	210	190	n/a	n/a
SVOC	n-Nitroso-di-n-propylamine	µg/kg	330	210	--	--	n/a	n/a
SVOC	N-nitrosodiphenylamine	µg/kg	470,000	300,000	--	--	n/a	n/a
SVOC	Phenol	µg/kg	250,000,000	160,000,000	--	--	n/a	n/a
VOC	1,1,1-Trichloroethane	µg/kg	7,300,000	7,200,000	--	--	n/a	n/a
VOC	1,1-Dichloroethene	µg/kg	1,000,000	350,000	230,000	83,000	n/a	n/a
VOC	1,1-Dichloropropene	µg/kg	2,600	8,200	580	1,800	n/a	n/a
VOC	1,2,3-Trichlorobenzene	µg/kg	310,000	300,000	63,000	40,000	n/a	n/a
VOC	1,2,4-Trichlorobenzene	µg/kg	110,000	35,000	24,000	7,800	n/a	n/a
VOC	1,2-Dibromo-3-chloropropane	µg/kg	64	57	5.3	4.3	n/a	n/a
VOC	1,3-Dichloropropane	µg/kg	--	--	420,000	410,000	n/a	n/a
VOC	2,4,5-Trichlorophenol	µg/kg	82,000,000	53,000,000	--	--	n/a	n/a
VOC	2,4,6-Trichlorophenol	µg/kg	--	--	7,500	7,800	n/a	n/a
VOC	2-Chlorotoluene	µg/kg	2,600,000	2,500,000	480,000	470,000	n/a	n/a
VOC	Acrylonitrile	µg/kg	300	1,100	68	250	n/a	n/a
VOC	bis (2-chloroethyl) ether	µg/kg	1,000	470	230	100	n/a	n/a
VOC	bis (2-chloroisopropyl) ether	µg/kg	47,000,000	16,000,000	3,100,000	2,000,000	n/a	n/a
VOC	Carbon tetrachloride	µg/kg	430	2,900	99	650	n/a	n/a
VOC	cis-1,2-Dichloroethene	µg/kg	86,000	84,000	19,000	18,000	n/a	n/a
VOC	cis-1,3-Dichloropropene	µg/kg	2,600	8,200	580	1,800	n/a	n/a
VOC	Dibromochloromethane	µg/kg	4,200	4,100	950	940	n/a	n/a
VOC	Isobutyl alcohol	µg/kg	110,000,000	100,000,000	23,000	14,000,000	n/a	n/a
VOC	Isophorone	µg/kg	2,400,000	1,600,000	--	--	n/a	n/a
VOC	Methylene chloride	µg/kg	24,000	26,000	1,900	2,200	n/a	n/a
VOC	N-Butylbenzene	µg/kg	6,400,000	18,000,000	1,200	2,400,000	n/a	n/a
VOC	Styrene	µg/kg	35,000,000	32,000,000	6,000,000	5,600,000	n/a	n/a
VOC	Toluene	µg/kg	5,400,000	5,300,000	--	--	n/a	n/a
VOC	trans-1,3-Dichloropropene	µg/kg	2,600	8,200	580	1,800	n/a	n/a
VOC	Vinyl chloride	µg/kg	--	--	8.8	8.2	n/a	n/a
VOC	Xylene, m,p-	µg/kg	2,500,000	2,400,000	580,000	550,000	n/a	n/a

Notes
µg/kg = micrograms per kilogram
CSL = commercial screening level
DTSC = California Department of Toxic Substances Control
mg/kg = milligrams per kilogram
n/a = not applicable
ng/kg = nanograms per kilogram
PAH = polycyclic aromatic hydrocarbom
PCB = polychlorinated biphenyl
SL = screening level
SVOC = semivolatile organic compound
VOC = volatile organic compound

TABLE 4-1
Wastewater Pipelines Status Summary
AOC 18 - Combined Wastewater Transference Pipelines
RFI/RI Report, Volume 3 - Soil Investigation
Pacific Gas and Electric Company Topock Compressor Station, Needles California

Sub-Segment	Connection	Diameter (inches)	Material	Length (feet)	Pressure Test Results	Associated Samples	Sample Rationale	Segment Status
Pipeline Segment A								
	Cooling towers to chromate reduction tank	3	PVC	1,500 (750 feet per tower)				
A-1	Chromate reduction tank to east bend at former oily water holding tank				Pass, unable to measure volume loss			Not removed; active pipeline; wastewater had acceptable concentrations of chromium
A-2	End of A1 to east of new oil water treatment system				Pass			Removed; clean-closed
A-3	End of A2 to junction of Cooling Tower A and B wastewater lines				Not tested, active line	PA-3 (1042-51-10)	Operating pipeline, sampled below joint at 1 foot bgs (same sample as for F-3), after underlying soil and the pipelines were removed.	Active line; wastewater had acceptable concentrations of chromium; ample flushing has occurred; clean-closed for contamination
Pipeline Segment B								
B-1	Chromate reduction tank to transfer sump	3	PVC	30	Pass			Removed; clean-closed
Pipeline Segment C								
C-1	Transfer sump to transfer pumps	3	PVC	15	Pass, slight leak at gate valve	PC-1 (1042-51-03)	Sampled at 1 foot bgs, beneath slight leak at valve.	Removed; clean-closed
Pipeline Segment D								
	Process pump tank to transfer pumps	3	PVC	500				
D-1[a]	Transfer pumps to east bend at former oily water holding tank				Pass			Removed; clean-closed
D-2	End of D1 to easy of new oily water treatment system				Pass			Removed; clean-closed
D-3	End of D3 to process pump				Pass, unable to measure volume loss			Portion of pipe removed; remainder abandoned in place (capped); clean-closed
Pipeline Segment E								
E-1	Precipitation tank to process pump tank	4	Steel	15	Short aboveground pipe, not tested, visual inspection			Removed; clean-closed
Pipeline Segment F								
	Transfer pumps to precipitation tank	3	PVC	500				
F-1[b]	to east bend at former oily water holding tank				Pass			Removed; clean-closed
F-2	End of F1 to east of new oily water treatment system				Pass			Removed; clean-closed
F-3	End of F2 to				Fail	PA-3 (1042-51-10)	Section railed pressure test (same sample as for A-3). Sampled at 1 foot bgs, after underlying soil and the pipelines were removed.	Most of pipe and underlying soil removed; clean-closed
F-4	10- to 15-foot section damaged by backhoe				Not tested; damaged by backhoe			Removed; clean-closed
F-5					Pass, unable to measure volume loss, slight seepage at coupling	PF-6 (1042-43-11 and duplicate 1042-43-12) PF-8 (1042-51-09)	Sampled 1 foot bgs beneath slight leak at PVC slip joint. Sampled at 1 foot bgs beneath the end of previous cut in the pipe, no visible evidence of leaks.	Portion of pipe removed; remainder abandoned in place (capped); clean-closed
Pipeline Segment G								
	Transfer pumps to old evaporation pond	3	PVC and aluminum (aboveground portion), polyethylene (buried portion)	1,500				

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Sub-Segment	Connection	Diameter (inches)	Material	Length (feet)	Pressure Test Results	Associated Samples	Sample Rationale	Segment Status
G-1	Transfer pumps to west bend in pipeline south of sludge drying beds.				Pass, unable to measure volume loss	PG-2 (1042-51-06)	No evidence of leak; sampled white material around pipe; fizzes with HCl; probably calcium carbonate from water-softening process.	Portions not removed; clean-closed
G-2	End of G1 to T at former evaporation pond 1				Pass (air tested)			Not removed; wastewater had acceptable concentrations of chromium; closed in place; section crossing Bat Cave Wash removed in 2007
G-3	End of G2 to end of pipe at former evaporation pond 4				Pass (air tested)			Not removed; wastewater had acceptable concentrations of chromium; closed in place
Pipeline Segment H								
	Precipitation tank to sludge drying bends	6	Vitrified clay; first 60 feet of H-1 were cast iron	500				
H-1					Not tested, visual inspection for leaks and contamination	PH-8 (1042-43-18)	Sampled 3 inches below pipe at 3 feet bgs after removal of soil contaminated with green sludge.	Removed; clean-closed
						PH-8 (1042-43-29)	Second confirmation sample following additional excavation.	
						PH-9 (1042-43-20)	Samples 3 inches below pipe at 3 feet bgs after removal of soil contaminated with white sludge.	
						PH-10 (1042-43-20)	Sampled 6 inches below pipe at 2 feet bgs after removed of soil contaminated with green sludge.	
						PH-10 (1042-43-26)	Second confirmation sample following additional excavation.	
H-2[c]					Not tested, visual inspection for leaks and contamination	PH-6 (1042-43-15)	Sampled 1.5 feet beneath clay pipe at 1.5 feet bgs after removal of soil contaminated with white sludge.	Removed; clean-closed
						PH-6 (1042-43-28)	Second confirmation sample following additional excavation.	
						PH-7 (1042-43-15 and duplicate 1042-43-16)	Sampled 3 inches beneath clay pipe at 5 feet bgs after removing soil where pipe was previously broken.	
						PH-11 (1042-43-21)	Sampled 6 inches beneath clay pipe at 4 feet bgs after removing soil where pipe was previously broken.	
						PH-12 (1042-43-22)	Sampled 3 inches beneath clay pipe at 4 feet bgs after removing soil where pipe was previously broken.	
						PH-13 (1042-43-23)	Sampled off end of previous break in pipe at 6 feet bgs; no visible evidence of leakage.	
H-3[c]	East of new oily water treatment system				Not tested, visual inspection for leaks and contamination	PH-4 (1042-43-04)	Sampled 3 feet beneath the end of previous break in pipe; no visible evidence of leakage.	Removed; clean-closed
						PH-5 (1042-43-105)	Sampled 65 feet off end of previous break at probable location of former pipe at 6 feet bgs.	

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Sub-Segment	Connection	Diameter (inches)	Material	Length (feet)	Pressure Test Results	Associated Samples	Sample Rationale	Segment Status
H-4[c]	West of new oily water treatment system to sludge drying beds				Not tested, visual inspection for leaks and contamination	PH-1 (1042-43-01) PH-2 (1042-43-02) PH-2 (1042-43-30) PH-3 (1042-43-03) PH-3 (1042-43-31)	Sampled 3 inches below gate valve after removal of soil contaminated with green sludge. Sampled below gate valve, no visible evidence of leakage. Second confirmation sample following additional excavation. Sampled beneath joint in clay pipe at 3 feet bgs, no visible evidence of leakage. Second confirmation sample following additional excavation.	Removed; clean-closed
Pipeline Segment I[d]								
		NA	NA	NA				
I-1	Oily water treatment system influent from valve box east of new oily water treatment system to former oily water holding tank			NA	Fail	OWS-PI-1 (1042-55-4) OWS-Valve-PI-1 (1042-55-6)	Sampled after removal of visibly contaminated soil at aboveground portion of pipe adjacent to OWS Sampled at 8 inches bgs after removal of stained soil by valve.	Portion of pipe removed; remaining 10 feet abandoned in place (capped); clean-closed
I-2	Oil/water separator to chromate reduction tank			Approx. same length as A-1	Pass	None	No evidence of leak.	Removed
Pipeline Segment J[e]								
J-2	Sludge drying beds to transfer sump	NA	NA	Est. 30 feet	NA	NA	NA	Removed

Notes
[a] This pipeline is shown as terminating just north of the Chromate Reduction Tank; the missing partial segment is interpreted as removed.
[b] This pipeline is shown as terminating just north of the Chromate Reduction Tank; the missing partial segment is interpreted as removed.
[c] Long section of pipe between H-2 and H-3 not shown in Mittelhauser drawing, interpreted as previously removed; similarly, a section of pipelines is shown as missing between H-3 and H-4, in the area where the new oily water treatment system was installed, this unit was also interpreted as removed.
[d] Pipeline segments listed in oily water treatment system closer report (Mittelhauser, 1990a); see discussion for Units 4.3 to 4.5 in Appendix B24
[e] Pipeline segment shown in figure in closure report but not listed in tables.
NA = not available
PVC = polyvinyl chloride