Appendix C
Part A Phase 1 Soil Investigation Data Gaps Evaluation Results

Contents

Acronyms and Abbreviations

µg/kg	micrograms per kilogram
AOC	Area of Concern
BaP	benzo(a)pyrene
bgs	below ground surface
BTV	background threshold value
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CHHSL	California human health screening level
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyl trichloroethene
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
ECV	ecological comparison value
mg/kg	milligrams per kilogram
NOAEL	no observed adverse effect level
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
RSL	regional screening level
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAL	Target Analyte List
TCL	Target Compound List
TPH	total petroleum hydrocarbons
UA	undesignated area
USEPA	United States Environmental Protection Agency
UTL	upper tolerance limit
VOC	volatile organic compound

APPENDIX C

Part A Phase 1 Soil Investigation Data Gaps Evaluation Results

This appendix presents the results of the Part A Phase 1 data gaps evaluation for the following areas:

- Solid Waste Management Unit (SWMU) 1 – Former Percolation Bed (Subappendix C1)
- Area of Concern (AOC) 1 – Area Around Former Percolation Bed (Subappendix C2)
- AOC 4 – Debris Ravine (Subappendix C10)
- AOC 9 – Southeast Fence Line (Subappendix C3)
- AOC 10 – East Ravine (Subappendix C4)
- AOC 11 – Topographic Low Areas (Subappendix C5)
- AOC 12 – Fill Area (Subappendix C6)
- AOC 14 – Railroad Debris Area (Subappendix C7)
- AOC 27 – MW-24 Bench Area (Subappendix C11)
- AOC 28 – Pipeline Drip Legs (Subappendix C12)
- Undesignated Area (UA) 1 – Potential Pipeline Disposal Area (Subappendix C8)
- UA 2 – Former 300B Pipeline Liquids Tank Area (Subappendix C9)

In addition, at the California Environmental Protection Agency, Department of Toxic Substances (DTSC) and the United States Department of Interior's direction, the data gaps evaluation incorporated the newly identified debris, historic burn, and white powder areas. The evaluation and agreed-upon sampling for these new areas is integrated into the sections regarding the appropriate SWMU/AOC.

Pacific Gas and Electric Company (PG&E) has also chosen to collect soil samples during maintenance and construction activities that require intrusive work. These samples are termed "opportunistic" soil samples. Opportunistic soil samples have been collected in or near three AOCs outside the compressor station fence line (AOC 10, AOC 11, and AOC 28). As of July 2012, a total of 34 opportunistic samples have been collected in the three AOCs outside the fence line, and have been incorporated into the database. Opportunistic samples are identified by the letters "OS" in the sample number (for example, samples AOC28-OS1 and AOC28-OS2 were collected as part of a trench excavation near the 300a and 300b pipelines). PG&E will continue to collect soil samples during future maintenance or new construction activities. Data from these opportunistic soil sampling events will be reported at least once a year.

C.1 Organization of Appendix C

The data gaps evaluation is presented in subappendices to this appendix. One subappendix is provided for each unit (that is, there are 12 sub-appendices, covering SWMU 1, AOC 1, AOC 4, AOC 9, AOC 10, AOC 11, AOC 12, AOC 14, AOC 27, AOC 28, UA 1, and UA 2).

Each subappendix is organized as follows:

- **Section 1.0, Introduction and Background,** contains background, history, and a summary of the combined data set.
- **Section 2.0, Decision 1 – Nature and Extent,** presents an evaluation of the nature and extent of chemicals of potential concern/chemicals of potential ecological concern (COPCs/COPECs) and a description of data gaps associated with the nature and extent of COPCs/COPECs. Soil results are discussed first, followed by data for any debris or white powder material, if present and sampled at that unit.
- **Section 3.0, Decision 2 – Data Sufficiency to Estimate Representative Exposure Point Concentrations,** presents the results of the data sufficiency evaluation with regard to estimation of representative exposure point concentrations for use in the human health and ecological risk assessments.
- **Section 4.0, Decision 3 – Potential Threat to Groundwater from Residual Soil Concentrations,** presents the results of the assessment of current and potential impacts to groundwater from contaminants in soils.
- **Section 5.0, Data Summary for Decision 4 – Data Sufficiency to Support the Corrective Measure Study/Feasibility Study,** presents the evaluation data needs for the corrective measures study/feasibility study for each specific unit.
- **Section 6.0, Potential Part A Phase 2 Sample Locations,** presents agreed-upon Part A Phase 2 sample locations and rationale. This includes the specific samples to be analyzed for soil physical properties. In addition, this section also identifies any access restrictions that may impact sample collection.
- **Section 7.0, References,** presents a list of works cited during preparation of these documents.

Section C.2 evaluates whether newly detected Part A Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Contract Laboratory Program Target Analyte List/Target Compound List (TAL/TCL) constituents should be considered COPCs and/or COPECs for the purposes of Decision 1. A separate evaluation of COPCs/COPECs will be conducted in the soil risk assessment as described in the approved *Human Health and Ecological* Risk Assessment Work Plan*, Topock Compressor Station, Needles, California* (Risk Assessment Work Plan) (ARCADIS, 2008). In accordance with the Risk Assessment Work Plan, all detected chemicals, (including TAL/TCL constituents,) will be considered in the data evaluation for the risk assessment. Therefore, detections of TAL/TCL constituents were retained for evaluation of Decision 2, regardless of the outcome of Decision 1.

Section C.3, discusses the distribution of lead and polycyclic aromatic hydrocarbons (PAHs) across the Part A SWMU, AOCs, and UAs.

Section C.4, provides additional detail regarding the modeling approach used to support Decision 3. References are provided in Section C.5.

C.2 Identification of Newly Detected Compounds

At the United States Department of the Interior's direction, 10 percent of Part A Phase 1 soil samples were analyzed for the full inorganic and organic suites per the CERCLA TAL/TCL. Samples collected in AOC 4 for TAL/TCL constituents were removed during the AOC 4 2010 time-critical removal action, except location AOC 4-1, which has been included in the discussion below. Table C-1, presented at the end of this appendix, presents a statistical summary of the soil samples analyzed for TAL/TCL constituents. (All tables and figures are presented at the end of this appendix.) As shown in Table C-1, the TAL/TCL constituents detected include:

- Seven inorganic compounds: aluminum, calcium, iron, magnesium, manganese, potassium, and sodium.
- Three semivolatile organic compounds (SVOCs): 4-methylphenol, bis(2-ethylhexyl)phthalate, and di-n-butyl phthalate.
- One volatile organic compound (VOC): methyl acetate.
- Two polychlorinated biphenyls (PCBs): Aroclor-1254 and Aroclor-1260. Total PCBs were also calculated.
- Five pesticides: 4,4-dichlorodiphenyldichloroethylene [4,4-DDE], 4,4-dichlorodiphenyl trichloroethane [4,4-DDT], alpha-chlordane, gamma-chlordane, and dieldrin.

Of the detected compounds listed above, aluminum, the three SVOCs, methyl acetate, the two PCBs, and the five pesticides are newly detected compounds resulting from the TAL/TCL analysis.

As described in the Soil Part A Data Quality Objectives Technical Memorandum (Appendix A of this work plan), the decision about whether a detected compound may represent a new COPC and/or COPEC for the purposes of defining nature and extent in Decision 1 will be based on multiple factors, including:

- Potential for the compound to be related to the compressor station (for example, potential for the compound to be associated with past activities at the compressor station and/or to be a breakdown product of constituents known to have originated at the compressor station).
- Frequency of detection.
- Concentration detected.
- Distribution of detections.

The evaluation of the detected TAL/TCL compounds is presented below.

C.2.1 Inorganic Compounds

As described above, aluminum, calcium, iron, magnesium, manganese, potassium, and sodium were detected in the Part A Phase 1 and historical soil samples analyzed for the complete TAL/TCL suite of compounds. These inorganic compounds are discussed below.

- Aluminum was detected in 59 of 59 samples collected during the Part A Phase 1 soil investigation. Detected concentrations slightly exceeded the interim screening level (background threshold value [BTV]) of 16,400 milligrams per kilogram (mg/kg) in one soil sample (18,000 mg/kg) collected in AOC 10 and in two soil samples (19,000 and 20,000 mg/kg) collected in AOC 11. None of the detected concentrations exceeded the residential and commercial/industrial California human health screening levels (CHHSLs) (77,000 mg/kg and 990,000 mg/kg, respectively). A numerical ecological comparison value (ECV) was not established for aluminum; however, aluminum is identified as a COPEC only for those soils with a soil pH less than 5.5 (ARCADIS, 2008; United States Environmental Protection Agency [USEPA], 2003). Soil pH results for the Part A SWMU, AOCs, and UAs range from 7.48 to 10.49. Soil pH results for the units included in Part A are presented in the individual subappendices to this appendix.

- Calcium was detected in 64 of 64 samples collected as part of Part A Phase 1. Detected concentrations of calcium exceeded the interim screening level of 66,500 mg/kg (BTV) in four soil samples collected in SWMU 1 and in one soil sample collected in AOC 10. The maximum detected concentration of calcium was 280,000 mg/kg collected in SWMU 1. There are no residential and commercial/industrial CHHSLs or USEPA regional screening levels (RSLs) for calcium. An ECV has not been established for calcium. Although ecological toxicity data are available for essential nutrients (for example, for calcium), the likelihood of calcium and other inorganic constituents that are essential nutrients (iron, magnesium, potassium, and sodium) being risk ecological drivers at the site is remote. Therefore, based on agency agreement, ECVs were not developed for iron, calcium, magnesium, potassium, and sodium (ARCADIS, 2009).

- Iron was detected in 91 of 91 samples collected as part of Part A Phase 1. The maximum detected concentration of iron was 32,000 mg/kg, which is below the interim screening level of 55,000 mg/kg (residential RSL). There are no residential and commercial/ industrial CHHSLs or USEPA RSLs for iron, and a BTV has not been established.

- Magnesium was detected in 64 of 64 samples collected as part of Part A Phase 1. Detected concentrations of magnesium slightly exceeded the interim screening level of 12,100 mg/kg (BTV) in two soil samples collected in SWMU 1 and in one soil sample collected in AOC 10. The maximum detection of magnesium was 14,700 mg/kg collected in SWMU 1. There are no residential and commercial/industrial CHHSLs or USEPA RSLs for magnesium. An ECV has not been established for magnesium.

- Manganese was detected in 89 of 89 samples collected as part of Part A Phase 1. Detected concentrations of manganese exceeded the interim screening level of 402 mg/kg (BTV/ECV) in one soil sample collected in each in SWMU 1, AOC1, and AOC 11; in two soil samples collected in AOC 10; and in two soil samples collected from UA 2. The maximum detected concentration of manganese was 1,300 mg/kg collected in AOC 10. None of the detected concentrations exceeded the residential and commercial/ industrial CHHSLs (1,800 mg/kg and 23,000 mg/kg, respectively).

- Potassium was detected in 63 of 63 samples collected as part of Part A Phase 1. Detected concentrations of potassium slightly exceeded the interim screening level of 4,400 mg/kg (BTV) in one soil sample collected in SWMU 1 and in two soil samples collected from AOC 11. The maximum detected concentration of potassium was

5,300 mg/kg collected in AOC 11. There are no residential and commercial/industrial CHHSLs or USEPA RSLs for potassium. An ECV has not been established for potassium.

- Sodium was detected in 52 of 64 samples collected as part of Part A Phase 1. The maximum detected concentration of sodium was 1,800 mg/kg in one soil sample collected in SWMU 1, which is below the interim screening level of 2,070 mg/kg (BTV). Residential and commercial/industrial CHHSLs and an ECV have not been established for sodium.

As expected, except for sodium, these naturally occurring inorganic compounds were detected in all soil samples collected as part of the Part A soil investigation. These compounds are among the most common elements that make up the rocks in the earth's crust. Elevated manganese is also common in desert soils and rock surfaces in the form of desert varnish (Dorn, 2007). Based on chemical inventory lists presented in the *Revised Final RCRA Investigation/Remedial Investigation Report, Volume 1 - Site Background and History, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2007), there is no current indication that manganese-containing compounds were used at the Topock Compressor Station. (CH2M HILL, 2007). Dehydrated lime sludge from the Permutit® water-conditioning system was produced at the compressor station (Pacific Gas and Electric Company [PG&E], 1962, 1968). Elevated levels of calcium may have been present in this sludge.

Based on the reasons stated above, PG&E does not recommend that these inorganic compounds be identified as new COPCs/COPECs for the purpose of defining nature and extent (Decision 1). The distribution of these compounds at each unit is also discussed in the individual subappendices to this appendix.

C.2.2 Semivolatile Organic Compounds

Three SVOCs (4-methylphenol, bis(2-ethylhexyl)phthalate, and di-n-butyl phthalate) were detected in the Part A Phase 1 soil and historical samples analyzed for the complete TAL/TCL suite of constituents, as shown in Table C-1. These SVOCs are discussed below.

- 4-methylphenol was detected in two of 518 soil samples collected during the Part A soil investigation: 430 micrograms per kilogram (µg/kg) at AOC14-2 at 0 to 0.5 foot below ground surface (bgs) and 460 µg/kg at UA2-300B-1 at 2.5 to 3 feet bgs. The two detected concentrations are below the interim screening level of 500 µg/kg (ECV) and well below the residential and commercial/industrial RSLs (310,000 µg/kg and 3,100,000 µg/kg, respectively).

- Bis(2-ehtylhexyl)phthalate was detected in four of 518 soil samples collected during the Part A soil investigation. The maximum detected concentration was 1,300 µg/kg at UA2-300B-1 at 2.5 to 3 feet bgs, which is below the interim screening level of 2,870 µg/kg and well below the residential and commercial/industrial RSLs (35,000 µg/kg and 120,000 µg/kg, respectively). Bis(2-ethylhexyl)phthalate was also detected at AOC1-T3c at 5 to 6 feet bgs (370 µg/kg), AOC4-1 at 2 to 3 feet bgs (810 µg/kg), and AOC14-3 at 0 to 0.5 foot bgs (640 µg/kg). A; all of these detections are also below the interim screening level.

- Di-n-butyl phthalate was only detected in one of 518 soil samples collected, at a concentration of 1,100 µg/kg in AOC12c-T1c at 10 to 11 feet bgs. The detected concentration of di-n-butyl phthalate exceeded the interim screening level (46.9 µg/kg) (ECV). The basis for the ECV was potential risk to the cactus wren using a no observed adverse effect level (NOAEL) and a home range of 4.8 acres; di-n-butyl phthalate screening levels for other ecological receptors were not exceeded (ARCADIS, 2009). The single detection of di-n-butyl phthalate does not appear significant when the range of ecological screening values and the basis for the ECV is considered. The detected di-n-butyl phthalate concentration is several orders of magnitude below the residential and commercial/industrial RSLs (6,100,000 µg/kg and 62,000,000 µg/kg, respectively).

The above SVOCs were detected in soil samples collected at sample locations AOC1-T3c, AOC4-1, AOC12c-T1c, AOC14-2, AOC14-3, and UA2-300B-1. To evaluate whether the detections of these SVOCs can be correlated with the presence of other constituents detected in these samples, PG&E considered all compounds detected in each of these six samples. The following is a summary of all compounds detected in these samples:

- AOC1-T3c (collected at 2 to 3 feet bgs): bis(2-ehtylhexyl)phthalate, total petroleum hydrocarbon (TPH) as motor oil, arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, molybdenum, nickel, vanadium, and zinc. Of these detected compounds, total chromium (89 mg/kg), hexavalent chromium (1.65 mg/kg), molybdenum (1.4 mg/kg), and zinc (65 mg/kg) were detected at concentrations exceeding their respective interim screening levels.

- AOC4-1 (collected at 2 to 3 feet bgs): bis(2-ehtylhexyl)phthalate, methyl acetate, arsenic, barium, total chromium, cobalt, copper, lead, nickel, vanadium, zinc, and Aroclor-1254. Of the detected compounds, lead (17 mg/kg) was the only compound detected above respective interim screening levels.

- AOC12c-T1c (collected at 10 to 11 feet bgs): bis (2-ethylhexyl) phthalate, TPH-motor-oil, arsenic, barium, total chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Only bis(2-ehtylhexyl)phthalate was detected at a concentration exceeding the interim screening level.

- AOC14-2 (surface soil sample): 4,4-DDE, 4,4-DDT, 4-methylphenol, TPH-diesel, TPH-motor-oil, arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, nickel, vanadium, zinc, and PAHs. Of the detected compounds, 4,4-DDE (2.0 µg/kg), 4,4-DDT (3 µg/kg), copper (44 mg/kg), and lead (18 mg/kg) were detected at concentrations exceeding their respective interim screening levels.

- AOC14-3 (surface soil sample): bis (2ethylhexyl) phthalate, TPH-motor-oil, arsenic, barium, total chromium, cobalt, copper, lead, molybdenum, nickel, vanadium, zinc, and PAHs. Of the detected compounds, only lead (8.4 mg/kg), and molybdenum (1.6 mg/kg) were detected at concentrations exceeding their respective interim screening levels.

- UA2-300B-1 (collected at 2.5 to 3 feet bgs): 4-methylphenol, bis(2-ethylhexyl)phthalate, TPH-diesel, TPH-motor-oil, arsenic, barium, total chromium, cobalt, copper, lead, nickel, vanadium, zinc, and PAHs. Of the detected compounds, only arsenic (16 mg/kg) and zinc (59 mg/kg) were detected at concentrations exceeding respective interim screening levels.

After review of other compounds detected in the soil samples where SVOCs were detected, there does not appear to be a discernable pattern or correlation between the other compounds detected at these locations and the detected SVOCs. Phthalates, including di-n-butyl phthalate and bis (2-ethylhexyl) phthalate, are common ingredients in polyvinyl chloride plastics. Phthalates are used to make common items such as carpets, paints, glue, insect repellents, hair spray, and nail polish (United States Department of Human Health Services, 2001).

4-methylphenol is a very common chemical and is a component in everyday items, such as cleaning and disinfectant products (i.e., Lysol), wood preservatives, road tar, and tobacco smoke.

For the above reasons, PG&E does not recommend that any of these three SVOCs be identified as a new COPC/COPEC for the purpose of defining nature and extent (Decision 1). These compounds are also discussed in the individual SWMU, AOCs, and UAs discussions in the sub-appendices to this appendix.

C.2.3 Volatile Organic Compounds

As described above, methyl acetate was the only VOC detected in the Part A Phase 1 soil samples analyzed for the complete TAL/TCL suite of compounds, as shown in Table C-1.

During the Part A soil investigation, methyl acetate was detected in three of 56 soil samples collected at 2 to 3 feet bgs at sample locations AOC1-T3a, AOC4-1, and AOC11e-2 at concentrations of 6.6 µg/kg, 12 µg/kg, and 17 µg/kg, respectively. The detected concentrations are six orders of magnitude below the interim screening level of 22,000,000 µg/kg (residential RSL).

Other compounds present in samples containing methyl acetate were evaluated as for the samples containing SVOCs. The following is a summary of other compounds detected in these samples:

- AOC1-T3a (collected at 2 to 3 feet bgs): bis (2-ethylhexyl) phthalate, TPH- as motor-oil, arsenic, barium, total chromium, cobalt, copper, lead, molybdenum, nickel, vanadium, and zinc. None of the detected compounds was detected at concentrations exceeding their respective interim screening levels.
- AOC4-1 (collected at 2 to 3 feet bgs): bis (2-ehtylhexyl) phthalate, arsenic, barium, total chromium, cobalt, copper, lead, nickel, vanadium, zinc, and Aroclor-1254. Of the detected compounds, lead (17 mg/kg) was the only compound detected above respective interim screening levels.
- AOC11e-2 (collected at 2 to 3 feet bgs): TPH-motor-oil, arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, molybdenum, nickel, vanadium, zinc, PAHs, and Aroclor-1254. Of these detected concentrations, total chromium (130 mg/kg), hexavalent chromium (3.78 mg/kg), copper (19 mg/kg), lead (11 mg/kg), molybdenum (2.9 mg/kg), and zinc (120 mg/kg) were detected at concentrations exceeding their respective interim screening levels.

After review of other compounds detected in the soil samples where methyl acetate was detected, there does not appear to be a discernable pattern or correlation between the other compounds detected at these locations and the detected VOCs.

Methyl acetate is infrequently detected at extremely low concentrations and is also a common laboratory contaminant; therefore, PG&E does not recommend that this VOC be identified as a COPC/COPEC for the purpose of defining nature and extent (Decision 1).

C.2.4 Polychlorinated Biphenyls

As described above, Aroclor-1254 and Aroclor-1260 were detected above interim screening levels in the Part A Phase 1 soil samples analyzed for the complete TAL/TCL suite of compounds, as shown in Table C-1.

- Aroclor-1254 was detected in 36 of 104 soil samples collected as part of Part A Phase 1. Aroclor-1254 was detected in SWMU 1, AOC 1, AOC 4, AOC 9, AOC 10, AOC 11, and AOC 12. Detected concentrations of Aroclor-1254 only exceeded the interim screening level (220 µg/kg) (residential RSL) in three soil samples collected near the mouth of AOC 4 – Debris Ravine where it drains into Bat Cave Wash, as shown in Figure C-1 provided at the end of this appendix. These samples were collected as part of the time-critical removal action that was implemented at AOC 4 to stabilize and mitigate the threat of release of contaminated material that was historically disposed of in AOC 4. The maximum detected concentration of Aroclor-1254 was 900 µg/kg, exceeding the commercial/industrial RSL (740 µg/kg).
- Aroclor-1260 was detected in only one of 104 soil samples (in AOC 11) collected as part of Part A Phase 1 at a concentration of 240 µg/kg, slightly exceeding the interim screening level (220 µg/kg) (residential RSL), as shown in Figure C-1. The detected concentration did not exceed the commercial/industrial RSL (740 µg/kg).

To assist with evaluation of PCBs for Decision 2, total PCB values were calculated.[1] Total PCBs were detected in 37 of 105 soil samples collected as part of Part A Phase 1. The total PCB concentrations exceeded the interim screening level of 204 µg/kg (ECV) in three soil samples collected near the mouth of AOC 4, where it drains into Bat Cave Wash, and in one soil sample collected in AOC 11, as shown in Table C-1. The maximum calculated concentration of total PCBs was 900 µg/kg collected in AOC 4.

There were four types of equipment within the compressor station in which PCBs may have been present at the Topock Compressor Station in the past. The types of equipment were the Natural Gas Transmission Line 300,[2] gas scrubbers, former compressor and generator engine oil bath air filters, and former electrical equipment (for example, transformers and capacitors), that may have contained PCB fluids. Transformers are identifiable at the compressor station in several historical aerial photographs (DTSC, 2008) but are no longer in use, and no historical analyses of the former transformer contents are available. PCBs were not detected in soil samples collected directly beneath the former oil-bath air filters.

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[1] Total PCB exposure point concentrations will be estimated for the ecological risk assessment.

[2] Only a small portion of Line 300 is located at the Topock Compressor Station; Line 300 is a linear facility which runs from the Arizona border to the San Francisco Bay Area.

Of the equipment at the Topock Compressor Station described in the above paragraph, the presence of PCBs has been detected in the past inside Natural Gas Line 300 and the scrubbers. PCBs, which were detected within Line 300 in the past, are known to be the result of contamination originating from Transwestern Pipeline Company in the late 1990s. PCBs were also detected in the liquid released from the gas transmission line 300A scrubbers during the annual blowdown event in March 2004 (CH2M HILL, 2007). Approximately 200 pounds of soil were removed during excavation and cleanup of this release.

PCBs have been added to the analyte lists for those AOCs and areas within the compressor station where used transformers or used oil may have been stored or in unpaved areas where pipeline liquids may have been applied to the ground surface. Information obtained from employees suggests that pipeline liquids historically may have been sprayed on unpaved areas for dust control (Russell, 2006). Based on available information, this practice ceased by 1975, and waste oil, including pipeline liquids, was sent offsite for reuse starting in 1975 (PG&E, 1980).

PCBs have been detected in all units, with the exception of AOC 14 and UA 2. Potential sources of the PCBs in AOC 1, AOC 9, AOC 10, AOC 11, and AOC 12 are runoff from the unpaved areas in the compressor station. Sources for the PCBs in Bat Cave Wash near the mouth of AOC 4 are most likely a result of disposal activities in AOC 4. PCBs are discussed further in the individual SWMU, AOCs, and UAs discussions in the sub-appendices to this appendix.

C.2.5 Pesticides

4,4-DDE, 4,4-DDT, alpha-chlordane, gamma-chlordane, and dieldrin were detected in Part A Phase 1 soil samples analyzed for the complete TAL/TCL suite of compounds, as shown in Table C-1. These pesticides are discussed below:

- 4,4-DDT was detected at a concentration of 3 µg/kg in one of 59 soil samples collected as part of Part A Phase 1. The detected concentration of 4,4-DDT exceeded the interim screening level of 2.1 µg/kg (ECV) in one soil sample collected at AOC14-2 at 0 to 0.5 foot bgs. The basis for the ECV was potential reproductive risk to the red-tailed hawk using a NOAEL and a home range of 2,471 acres. The preliminary NOAEL-based ECV that was calculated for the cactus wren was also exceeded; the cactus wren home range is 4.8 acres. Screening levels for non-avian ecological receptors were not exceeded (ARCADIS, 2009). The detection of 4,4-DDT does not appear significant when the range of ecological screening values and the basis for the ECV is considered. When DDT and metabolites are combined and compared with the ECV, the detections are also not significant when the basis of the ECV and the range of potential risk estimates (that is, other representative receptors and the range of available toxicity reference values) are considered. The detected concentration did not exceed the residential or commercial/industrial CHHSLs (1,600 µg/kg and 6,300 µg/kg, respectively).
- 4,4-DDE, the daughter product of 4,4-DDT, was detected in three of 59 soil samples (3.2 µg/kg at AOC9-11 at 0 to 0.5 foot bgs, 6.1 µg/kg at AOC11d-1 at 0 to 0.5 foot bgs, and 2.9 µg/kg at AOC14-2 at 0 to 0.5 foot bgs) collected as part of Part A Phase 1. The three detected concentrations of 4,4-DDE exceeded the interim screening level of 2.1 µg/kg (ECV). The maximum detected concentration of 4,4-DDE is 6.1 µg/kg. As

discussed above for 4,4-DDT, the three sporadic detections of 4,4-DDE do not appear significant when the range of ecological screening values and the basis for the ECV are considered. The detected concentration did not exceed the residential or commercial/ industrial CHHSLs (1,600 µg/kg and 6,300 µg/kg, respectively).

- Alpha-chlordane was detected in one of 59 soil samples collected as part of Part A Phase 1 at a concentration of 12J µg/kg collected at AOC11d-1 at 0 to 0.5 foot bgs, which is well below the interim screening level of 430 µg/kg (residential CHHSL) and the ECV of 470 µg/kg.
- Gamma-chlordane was detected in one of 59 soil samples collected as part of Part A Phase 1 at a concentration of 13J µg/kg collected at AOC11d-1 at 0 to 0.5 foot bgs, which is well below the interim screening level of 430 µg/kg (residential CHHSL) and the ECV of 470 µg/kg.
- Dieldrin was detected in one of 59 soil samples collected as part of Part A Phase 1 at a concentration of 6.7 µg/kg. The detected concentration of dieldrin exceeded the interim screening level (5 µg/kg) (ECV) and was collected at AOC11d-1 at 0 to 0.5 foot bgs. The basis for the ECV was potential risk to the desert shrew estimated using a geometric mean NOAEL for growth and reproduction and a home range of 0.1 acre; screening levels for other ecological receptors were not exceeded (ARCADIS, 2009). The single detection of dieldrin sitewide does not appear significant when the range of ecological screening values and the basis for the ECV are considered. The detected concentration did not exceed the residential or commercial/industrial CHHSLs (35 µg/kg and 130 µg/kg, respectively).

Pesticides were detected in the surface soil samples at sample locations AOC9-11, AOC11d-1, and AOC14-2. To assess potential patterns of compounds detected in association with pesticides, all other detected compounds in these three samples were also reviewed. The following is a summary of all compounds detected in these samples:

- AOC9-11 (surface soil sample): 4,4-DDE, TPH-motor-oil, PAHs, arsenic, barium, total chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc were detected. Only mercury (0.13 mg/kg) was detected at a concentration above its interim screening level.
- AOC11d-1 (surface soil sample): 4,4-DDE, alpha-chlordane, gamma-chlordane, dieldrin, arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, nickel, vanadium, zinc, PAHs, TPH-motor-oil, and Aroclor-1254. Of the detected compounds, 4,4-DDE, dieldrin, copper (19 mg/kg), lead (16 mg/kg), zinc (73 mg/kg), benzo(a)pyrene (44 µg/kg) and PAHs as benzo(a)pyrene equivalents (66 µg/kg) were detected at concentrations exceeding their respective interim screening levels.
- AOC14-2 (surface soil sample): 4,4-DDE, 4,4-DDT, 4-methylphenol, TPH-diesel, TPH-motor-oil, arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, nickel, vanadium, zinc, and PAHs. Of the detected compounds, 4,4-DDE, 4,4-DDT, copper (44 mg/kg), and lead (18 mg/kg) were detected at concentrations exceeding their respective interim screening levels.

Several pesticides (4,4-DDE, alpha-chlordane, gamma-chlordane, and dieldrin) are collocated in the surface soil sample collected at location AOC11d-1. After review of other compounds detected in the soil 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.

The only possible historical source of 4,4-DDT and its daughter products and dieldrin in the area would have been pest (insect) control.

The distribution of pesticides at each unit where they were detected is also discussed in the individual SWMU, AOCs, and UAs discussions in the subappendices to this appendix. Based on the reasons presented above, PG&E does not recommend that 4,4-DDE, 4,4-DDT, and dieldrin be identified as new COPCs/COPECs. However, the agencies have directed PG&E to analyze for pesticides in select proposed Phase 2 sample locations in AOC 1 (Subappendix C2, Table C2-19), AOC 11 (Subappendix C5, Table C5-19), and AOC 14 (see Subappendix C2 Table C2-19, Subappendix C5 Table C5-19, and (Subappendix C7, Table C7-15).

C.3 Lead and Polycyclic Aromatic Hydrocarbon Distribution

Lead and PAHs have been detected in soil samples collected across the Part A SWMU, AOCs, and UAs. Many of these detections exceed the interim screening levels; these exceedances are discussed in the individual subappendices to this appendix. Lead and PAHs are found primarily in the surface and shallow soil samples, and exceedances in soil are not consistent with the conceptual site models developed for these sites (that is, these exceedances are not found in areas where other elevated COPCs/COPECs are found or in areas with known or suspected contamination).

Many natural and anthropogenic sources of lead and PAHs exist. Particulate lead is commonly found in surface soil near roadways as a result of leaded gasoline use in vehicles until the 1970s. Former Route 66 and California Interstate Highway 40 are near most of the Part A sites. The site-specific background concentration of lead in soil is 8.39 mg/kg.

PAHs are ubiquitous in both urban and rural environments. The most notable natural and anthropogenic sources of PAHs are from combustion of fossil fuels, wild fires, volcanic activities, industrial facilities, petroleum oils, asphalt binders, and vehicle exhaust. However, because PAHs were not detected in site-specific background samples, a Topock site-specific background value was not calculated. Therefore, the interim screening level of 38 µg/kg benzo(a)pyrene (BaP) equivalents is based on the CHHSL for residential use. The Topock background samples were collected from areas away from the compressor station, Interstate 40, former Route 66, and the Burlington Northern Santa Fe railroad tracks—all of which are potential sources of PAHs. Two background samples (BKG-13 and BKG-17) are located in the vicinity (20 to 30 feet away) of old Route 66. Both are located 5 to 10 feet higher than the former road surface, so would not encounter runoff from the previous road surface. The closest any of the background samples come to the railroad is 500 feet away) and I-40 freeway is 750 feet away, with most samples much further away.

To aid in the cleanup process at manufactured gas plant sites, DTSC developed the advisory *Use of the Northern and Southern California Polynuclear Aromatic Hydrocarbon (PAH) Studies in* *the Manufactured Gas Plant Site Cleanup Process* (DTSC, 2009). The advisory describes how ambient concentrations of PAHs identified by the southern and northern California background PAH studies can be used to help guide the cleanup process at manufactured gas plant sites. The advisory is to be used on a case-by-case basis for those sites that are similar to the sites that were used in the southern and northern California background PAH studies. The DTSC advisory suggests that for similar sites, a value of 900 µg/kg in benzo(a)pyrene BaP equivalents can be used as a pragmatic target for guiding soil excavation/remediation because 900 µg/kg benzo(a)pyrene BaP equivalents corresponds to the upper bounds of the southern and northern California ambient/background data sets. While anthropogenic sources of PAHs in the vicinity of the compressor station are likely less substantial than for some locations included in the northern and southern California PAH studies, some anthropogenic contribution of PAHs is likely due to the proximity of roads and railroad tracks.

Although lead and PAH detection distribution in soil are generally not consistent with the conceptual site models developed for the site and may or may not be the result of activities related to the compressor station, soil samples collected during the Part A Phase 2 soil investigation will be analyzed for lead and PAHs in AOC 9, AOC 10, and AOC 11, and for PAHs in AOC 4 and AOC 14, since data gaps have been identified in these AOCs (Subappendices C3 through C5, C7, and C10). Soil samples collected in new AOCs 27 and 28 will also be analyzed for lead and PAHs. The Part A Phase 2 proposed sample locations are presented in the subappendices to this appendix.

C.4 Additional Details on Modeling Approach (Decision 3)

This section presents the development and application of the models and assumptions used to simulate variably unsaturated flow and solute transport in the vadose zone associated with the third tier of the screening assessment of potential future threat to groundwater from COPCs in vadose zone.[3] Only those units where inorganic COPCs/COPECs exceeded the soil screening levels (Step 2 of the threat to groundwater screening process) and organics were simulated. The objective of the initial model simulations is intended as a conservative screening process to evaluate which COPCs can be ruled out as having the potential to leach to groundwater. The models were developed using conservative assumptions regarding infiltration rates and initial COPC/COPEC concentrations.

The analyses were performed with the existing data set to assess the potential threat to groundwater and to assess if whether additional data, above and beyond that necessary for Decision 1, is needed to resolve Decision 3. Additional evaluations will be performed as appropriate as data are collected to resolve Decision 1. The preliminary conclusions regarding the threat to groundwater are based on available data and will be revisited after the implementation of the soil investigation. The combined data set will then be evaluated for data gaps, and further conclusions regarding the threat to groundwater will be provided to the agencies and stakeholders for review prior to submittal of the RFI/RI Volume 3.

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[3] The details provided herein on the approach and assumptions of the vadose zone model were not included in the technical memorandum entitled *Calculation of Soil Screening Levels for Protection of Groundwater at the PG&E Topock Compressor Station* (CH2M HILL, 2008).

The HYDRUS-1D code version 4.14 (Simunek et al., 1998) was selected for the modeling effort because it can numerically solve the variably saturated flow equation (i.e., Richards Equation) and transport equations in one dimension (that is, from the COPC/COPEC source area near land surface downward through the vadose zone to the top of the water table).

The mathematical model design is the result of converting the conceptual site model into a form that is suitable for numerical modeling. The following steps were associated with the mathematical model design:

1. Establish the vertical extent of the model.
2. Spatially distribute the subsurface hydraulic parameter values.
3. Spatially distribute the transport parameter values and initial COPC concentrations.
4. Select a time discretization approach appropriate for evaluating the field problem and fulfilling the modeling objectives.
5. Establish boundary conditions for flow (that is, water budget terms through time).

The total thickness of the simulated vadose zone profiles in the HYDRUS-1D models was variable and was based on the depth to groundwater beneath each area. Profile depths ranged from 30 feet to 100 feet bgs and, except for AOC 1, SMWU 1, and AOC 11, were estimated from the groundwater flow model developed for the Topock site. AOC 1, SMWU 1, and AOC 11 are near wells MW-11, MW-10, and MW-12, respectively, and profile thicknesses were determined based on groundwater level data at those locations. Numerical models require the area being simulated to be discretized into separate cells or nodes. For this evaluation, all models were comprised of 200 model nodes, resulting in a maximum cell thickness of 8 inches. The model simulated of 100 years of transport.

Boundary conditions are mathematical statements (i.e., rules) that specify water elevation, water flux, solute concentration, and solute flux at particular locations within the model domain, which can vary in time. The upper boundary condition for water flow in the HYDRUS-1D model was set as a specified -flux boundary equal to 0.1 inch of infiltration per year to simulate the estimated percolation rate, except for AOC 10a, AOC 10b, and AOC 10c, as discussed in Section C.4.1. The bottom boundary was set as a specified -pressure head equal to 0 feet, representing the water table. The model was initially run in transient mode until a steady-state moisture profile was achieved. The resulting equilibrium vertical moisture profile was then used for the initial moisture conditions for the transport simulation.

C.4.1 Model Parameters

HYDRUS-1D was set up to numerically solve the Richards equation using the van Genuchten (1980) model of soil hydraulic properties. The models were parameterized using the soil catalog (Carsel and Parrish, 1988). The soil catalog provides values for the van Genuchten parameters for a number of different soil types. For the current set of models for the Topock site, the soil texture was assumed to be a loamy sand. Table C-2 presents the van Genuchten parameters defined by the soil catalog for this type of soil that were used in all of the HYDRUS-1D models.

Except for models of AOC 10a, AOC 10b, and AOC 10c, a deep percolation rate of 0.1 inch per year was used. Diffuse natural recharge rates are assumed to be very low (< 0.1 inch per year) across the Mohave Desert at the elevation range of the Topock site, based on literature from similar terrain (Hevesi et al., 2003). The United States Geological Survey estimated recharge rates of Bat Cave Wash in an unpublished study following similar methods of Hevesi et al. (2003). The United States Geological Survey recharge rate estimate for Bat Cave Wash was 0.005 inch per year. This is the recharge rate estimated for the bottom of the wash where runoff is concentrated and surface water flows occur a few times per year. Recharge rates for upland sites would be considerably less than in Bat Cave Wash. PG&E chose to use a conservatively high rate of recharge of 0.1 inch per year in the screening model simulations.

At AOC 10a, AOC 10b, and AOC 10c, deep percolation rates were likely higher because of annual Topock Compressor Station fire pump tests, which reportedly discharged into East Ravine. Visual observations of soil wetness by site personnel following these tests suggest that areas AOC 10a, AOC 10b, and AOC 10c receive water from the fire pump test discharges. As a conservative estimate, the deep percolation rate for Areas AOC 10a, AOC 10b, and AOC 10c was set at 1.3 inches per year, disregarding the effects of evapotranspiration. AOC 10d was not impacted by the fire pump tests.

Solute transport parameters used in the HYDRUS-1D model are shown in Table C-3. Dispersivity was a model-specific parameter and was calculated using the model of Xu and Eckstein (1995), in which dispersivity is correlated to the length of the flow path (that is, deeper soil profiles experience greater dispersion). The distribution coefficient (K_d) was COPC/COPEC-specific. K_d values used in the models were the mean value for each COPC/COPEC presented in *Partition Coefficients for Metals in Surface Water, Soil, and Waste* (United States Environmental Protection Agency (USEPA, 2005), except for hexavalent chromium. The K_d value used for hexavalent chromium was a Topock site-specific value of 0.318 milliliters per gram estimated by ARCADIS during the upland *in -situ* pilot test (Gillow, personal communication, 2009).

A conservative approach was used to establish the initial soil concentration profiles for the HYDRUS-1D simulations. For each modeled COPC/COPEC, soil samples at each unit or subarea were pooled. The initial concentration profile was established such that the maximum concentration detected within the unit or subarea over a given depth interval was assigned across the entire interval. For each modeled COPC/COPEC, the maximum concentration at the deepest sample depth was assigned from that depth to the water table. In cases where the maximum concentration for a given depth interval was a non-detect, a value equal to half of the maximum reporting limit was used. This highly conservative approach was used to remove COPCs in soil as a threat to groundwater with a high degree of confidence. If all sample results for a given COPC were nondetects at a specific unit or subarea, the COPC/COPEC was not modeled.

C.4.2 Model Application

HYDRUS-1D output is in the form of time-series COPC/COPEC concentration at the model's bottom boundary (that is, the water table). To calculate the groundwater concentration projected to result from vadose zone leaching, the HYDRUS-1D output was input into a spreadsheet-based mixing-cell model. The mixing cell accounts for the mixing of the pore water leaching from the vadose zone as it enters the top 10 feet of the saturated zone. The mixing cell calculation accounts for fluxes of water and COPCs/COPECs from the vadose zone and the flux of groundwater through the uppermost 10 feet of the aquifer below each unit. Allowing mixing to occur only in the top 10 feet of aquifer is an additional conservative approach because COPCs at Topock are mixed across the entire thickness of the aquifer.

The calculation includes the following assumptions:

- The COPCs/COPECs leaching from the vadose zone will mix only in the uppermost 10 feet of the aquifer.
- Instantaneous mixing occurs within the mixing cell.
- Saturated conditions exist within the mixing cell.
- No decay or vapor-phase exchange occurs within the mixing cell.

Figure C-2 shows the dimensions of each mixing cell. Mixing cells were oriented such that they encompassed the entire unit or subarea of interest and so that they were orthogonal to the primary direction of groundwater flow as determined by the current Topock groundwater flow model. The water flux value representing subsurface inflow into the mixing cell was estimated using the current Topock groundwater flow model representing pre-pumping conditions. The upgradient concentration and initial concentration in the mixing cell were set to zero so that inputs from the vadose zone of the modeled unit only could be evaluated. An impact to groundwater by a COPC/COPEC was defined as a concentration in the mixing cell in excess of the groundwater upper tolerance limit (UTL) at any time during the 100-year simulation time. Groundwater UTLs are shown in Table C-4.

The results of the modeling effort for each unit are presented in the subappendices to this appendix.

C.4.3 Model Application for Organic Compounds

As shown in Table C-5, detected SVOCs, VOCs, Aroclor-1254, and dioxins/furans were modeled using the HYDRUS-1D model code as described above; however, the model for organics was constructed assuming a hypothetical worst-case scenario using a set of extremely conservative input parameters. For example, the distance to groundwater assumed the shortest distance observed across all SWMUs/AOCs or UAs (30 feet) and the highest infiltration rate (1.3 inches/year), and the initial concentration profile assumed the highest concentration detected at each depth interval, regardless of in which AOC the compound was detected. The analysis was conducted in this manner to show that even when an unrealistically conservative set of input parameters was used, organic compounds do not cause a significant increase in groundwater concentration when compared to regulatory standards.

Naphthalene was modeled as a conservative proxy for all PAHs because it is the most mobile of this class of chemicals. Similarly, Aroclor -1254 was modeled for all PCBs, and dioxin TCDD, 2,3,7,8- was modeled for dioxin/furans.

Table C-5 presents results of this analysis. Even using ultraconservative assumptions, none of the organic compounds detected in soil is a threat to groundwater.

C.5 References

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Tables

TABLE C-1

Statistical Summary of Newly Detected Contract Laboratory Target Analyte List/Target Compound List for
Part A Areas of Concern and Solid Waste Management Units
Soil Investigation Part A Phase 1 Data Gaps Evaluatioin Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Frequency of detection	Maximum Detected Value	Background Threshold Value (BTV) [1]		Ecological Comparison Value (ECV) [2]		Residential Screening Level (Res SL) [3]		RWQCB Environmental Screening Levels (ESL) [4]		Commercial Screening Level (Com SL) [5]		Interim Screening Level (Int SL) [6]	
				# of Exceedences [7]	(BTV)	# of Exceedences [8]	(ECV)	# of Exceedences [8]	(Res SL)	# of Exceedences [8]	(ESL)	# of Exceedences [8]	(Com SL)	# of Exceedences [8]	(Int SL)
Contract Laboratory Program Inorganics															
Aluminum	mg/kg	59 / 59 (100%)	20,000	3	(16,400)	NA	(NE)	0	(77,000)	NA	(NE)	0	(990,000)	3	(16,400)
Calcium	mg/kg	64 / 64 (100%)	280,000	5	(66,500)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	5	(66,500)
Iron	mg/kg	91 / 91 (100%)	32,000	NA	(NE)	NA	(NE)	0	(55,000)	NA	(NE)	0	(720,000)	0	(55,000)
Magnesium	mg/kg	64 / 64 (100%)	14,700	3	(12,100)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	3	(12,100)
Manganese	mg/kg	89 / 89 (100%)	1,300	7	(402)	7	(220)	0	(1,800)	NA	(NE)	0	(23,000)	7	(402)
Potassium	mg/kg	63 / 63 (100%)	5,300	3	(4,400)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	3	(4,400)
Sodium	mg/kg	52 / 64 (81%)	1,800	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	0 / 59 (0%)	ND (6.69) ‡	NA	(NE)	0	(0.9)	0	(1,600)	NA	(NE)	0	(20,000)	0	(0.9)
Semivolatile Organic Compounds															
4-Methylphenol	µg/kg	2 / 518 (0.39%)	460	NA	(NE)	0	(500)	0	(310,000)	NA	(NE)	0	(3,100,000)	0	(500)
Bis (2-ethylhexyl) phthalate	µg/kg	4 / 518 (0.77%)	1,300	NA	(NE)	0	(2,870)	0	(35,000)	NA	(NE)	0	(120,000)	0	(2,870)
Di-N-butyl phthalate	µg/kg	1 / 518 (0.19%)	1,100	NA	(NE)	1	(46.9)	0	(6,100,000)	NA	(NE)	0	(62,000,000)	1	(46.9)
Volatile Organic Compounds															
Methyl acetate	µg/kg	3 / 56 (5.4%)	17	NA	(NE)	NA	(NE)	0	(22,000,000)	NA	(NE)	0	(92,000,000)	0	(22,000,000)
Polychlorinated biphenyls															
Aroclor 1254	µg/kg	36 / 104 (35%)	900	NA	(NE)	NA	(NE)	3	(220)	NA	(NE)	1	(740)	3	(220)
Aroclor 1260	µg/kg	1 / 104 (0.96%)	240	NA	(NE)	NA	(NE)	1	(220)	NA	(NE)	0	(740)	1	(220)
Total PCBs	µg/kg	37 / 105 (35%)	900	NA	(NE)	5	(204)	NA	(NE)	NA	(NE)	NA	(NE)	5	(204)
Pesticides															
4,4-DDE	µg/kg	3 / 59 (5.1%)	6.1	NA	(NE)	3	(2.1)	0	(1,600)	NA	(NE)	0	(6,300)	3	(2.1)
4,4-DDT	µg/kg	1 / 59 (1.7%)	3	NA	(NE)	1	(2.1)	0	(1,600)	NA	(NE)	0	(6,300)	1	(2.1)
alpha-Chlordane	µg/kg	1 / 59 (1.7%)	12	NA	(NE)	0	(470)	0	(430)	NA	(NE)	0	(1,700)	0	(430)
Dieldrin	µg/kg	1 / 59 (1.7%)	6.7	NA	(NE)	1	(5)	0	(35)	NA	(NE)	0	(130)	1	(5)
gamma-Chlordane	µg/kg	1 / 59 (1.7%)	13	NA	(NE)	0	(470)	0	(430)	NA	(NE)	0	(1,700)	0	(430)

Notes

[1] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

[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 - residential DTSC CHHSL. If the residential DTSC CHHSL is not established, the USEPA regional screening level is used. (PCBs are an exception to this rule since their final screening levels are equal to the EPA regional screening levels).

[4] Water Board. 2008. "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater" (Table K-1). May 27.

[5] Commercial screening level - commercial DTSC CHHSL. If the commercial DTSC CHHSL is not established, the USEPA regional screening level is used. (PCBs are an exception to this rule since their final screening levels are equal to the EPA regional screening levels).

[6] Interim screening level is equal to the appropriate background value, if a background value is not available then the lesser of the soil ecological comparison values and DTSC CHHSL is used, if the DTSC CHHSL is not available, the USE

[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

* 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 interim screening level

USEPA regional screening level - USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

CHHSL - California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). January.

mg/kg	miligrams per kilogram
µg/kg	micrograms per kilogram
ng/kg	nanograms per kilogram
NA	not applicable
ND	not detected in any of the samples
NE	not established
SL	screening level

USEPA	United States Environmental Protection Agency
DTSC	California Department of Toxic Substances Control
CHHSL	California human health screening levels
Water Board	Regional Water Quality Control Board

TABLE C-2
Hydraulic Parameters Used in HYDRUS-1D Models
Soil Investigation Part A, Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

θ_r (-)	θ_s (-)	α (feet^{-1})	n (-)	K_s (ft/day)	Deep Percolation (in/yr)
0.057	0.377	3.8	2.28	11.5	0.1 (except in AOC 10 a, b, and c)

ft/day = feet per day.
in/yr = inches per year.
θ_s – Saturated soil water content.
θ_r – Residual soil water content.
α – van Genuchten's alpha parameter.
n - van Genuchten's n parameter.
K_s – Saturated hydraulic conductivity

TABLE C-3
Solute Transport Parameters Used in HYDRUS-1D Models
Soil Investigation Part A, Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

Dispersivity (feet)	K_d (mL/g)	Bulk Density (g/cm^3)	Water Diffusivity (cm^2/s)[a]
Model-Specific	COPC-Specific	1.65	7.37E-06

[a] Diffusivity value is average of the metal ions presented in Table 10.1 (Domenico and Schwartz, 1998).

K_d = distribution coefficient.
mL/g = milliliters per gram.
g/cm^3 = grams per cubic centimeter.
cm^2/s = square centimeters per second.

TABLE C-4
Background UTLs for Trace Metals in Groundwater
Soil Investigation Part A, Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

COPC	UTL (µg/L)
Antimony	1.22
Arsenic	24.3
Barium	195
Beryllium	0.663
Cadmium	--[a]
Chromium	34.1
Chromium, Hexavalent	31.8
Cobalt	0.843
Copper	10.5
Lead	1.91
Mercury	--[a]
Molybdenum	36.3
Nickel	10.6
Selenium	10.3
Silver	2.13
Thallium	0.908
Vanadium	59.9
Zinc	77.7

[a] The background values for cadmium and mercury are detection limits of 1.0 and 0.2 mg/L, respectively.

µg/L = microgram per liter.
NA = not applicable.

TABLE C-5
Results of Organic Compounds' Threat to Groundwater Analysis
Soil Investigation Part A, Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

Constituent of Concern	Applicable Drinking Water Standard (μg/L)	Source for Standard	Model-Forecast Maximum Increase in Groundwater Mixing Cell (μg/L)
Methyl Acetate	37,000	USEPA tap water screening level (USEPA, 2010)	1
Naphthalene	17	California Regional Water Quality Control Board, San Francisco Bay Region environmental screening level (Deep Soils – Potential Drinking Water Source) (Water Board, 2008)	2
4-Methylphenol	180	USEPA tap water screening level	9
Bis (2-ethylhexyl) phthalate	4	California maximum contaminant limit (California Department of Health Services, 2006)	< 1
Di-N-butyl phthalate	3,700	USEPA tap water screening level	6
PCB	0.5	California maximum contaminant limit (California Department of Health Services, 2006)	< 0.1
Dioxin	1.1E-05	USEPA tap water screening level	0

California Environmental Protection Agency, Department of Health Services. 2006. *Maximum Contaminant Levels and Regulation Dates for Drinking Water Contaminants*.

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Figures

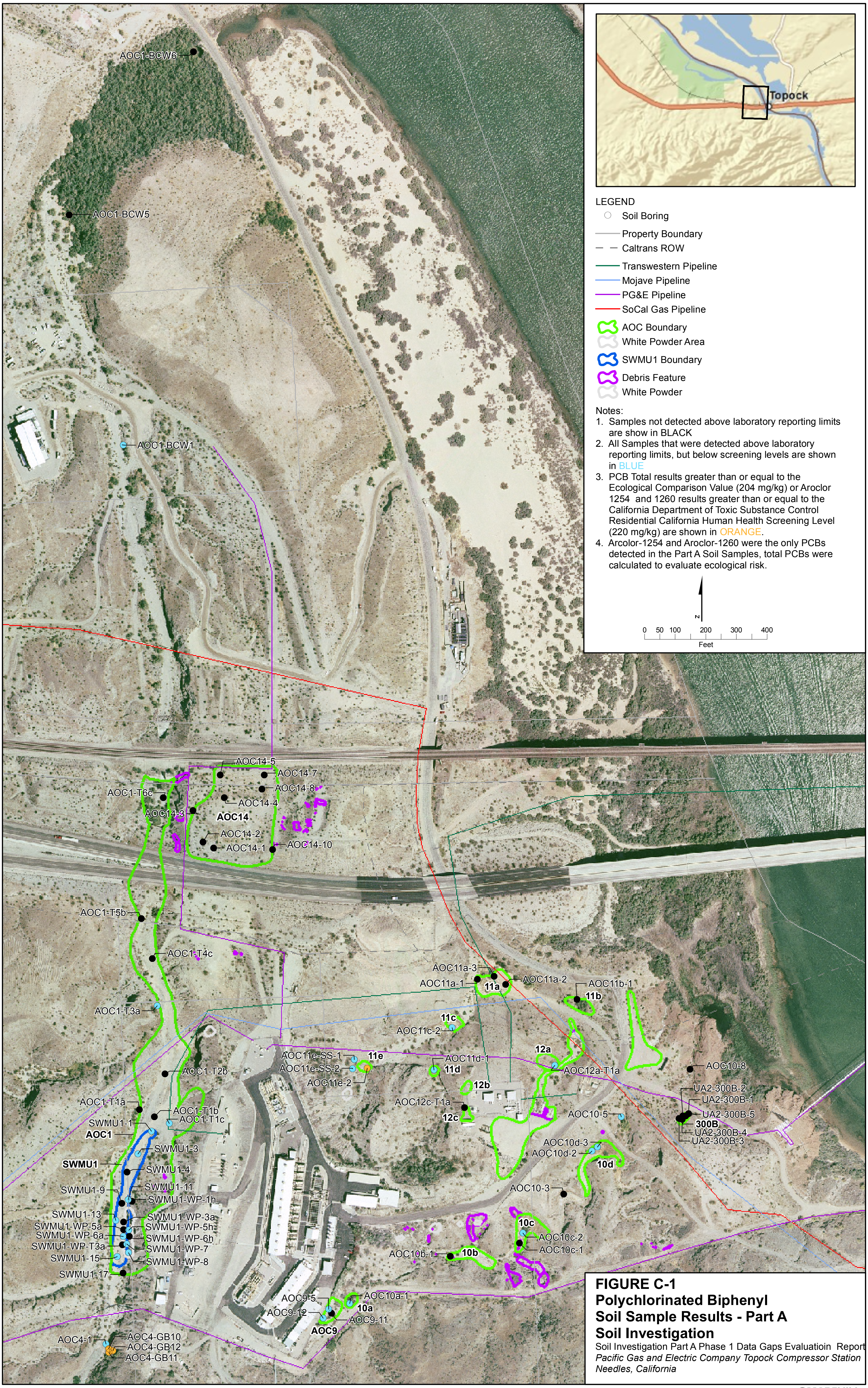

FIGURE C-1
Polychlorinated Biphenyl Soil Sample Results - Part A Soil Investigation

Soil Investigation Part A Phase 1 Data Gaps Evaluatioin Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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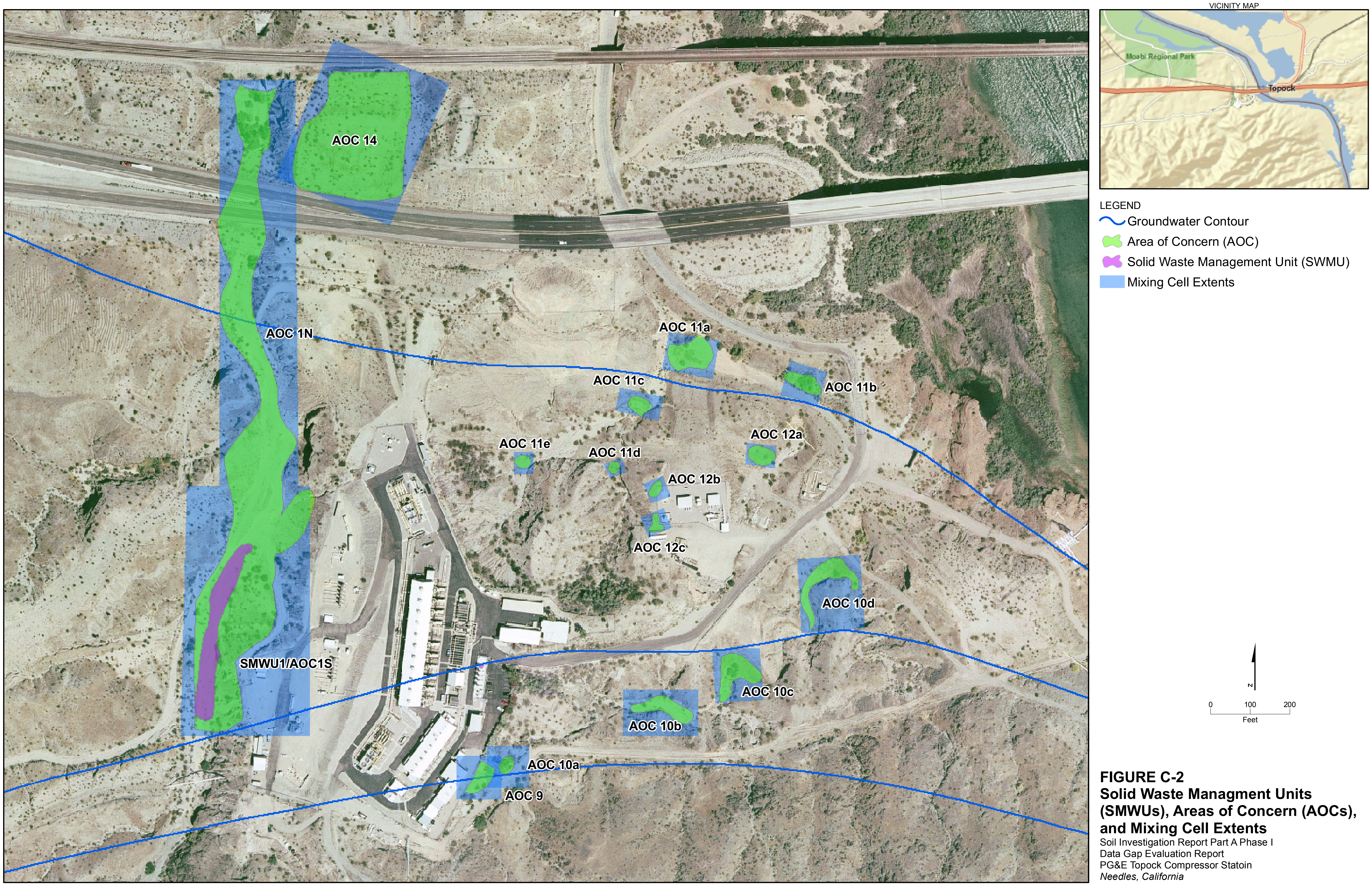

FIGURE C-2
Solid Waste Managment Units (SMWUs), Areas of Concern (AOCs), and Mixing Cell Extents
Soil Investigation Report Part A Phase I
Data Gap Evaluation Report
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Needles, California

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Subappendix C1
Solid Waste Management Unit 1 Data Gaps Evaluation Results

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Acronyms and Abbreviations

µg/kg	micrograms per kilogram
AOC	Area of Concern
bgs	below ground surface
BTV	background threshold value
CHHSL	California human health screening level
CMS/FS	corrective measures study/feasibility study
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
DQO	data quality objective
ECV	ecological comparison value
EPC	exposure point concentration
mg/kg	milligrams per kilogram
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PG&E	Pacific Gas and Electric Company
RFI/RI	RCRA facility investigation/remedial investigation work plan
RSL	regional screening level
SPLP	synthetic precipitation leaching procedure
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAL	Target Analyte List
TCL	Target Compound List
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbons
TTLC	total threshold limit concentration
VOC	volatile organic compound

SUBAPPENDIX C1

Solid Waste Management Unit 1 Data Gaps Evaluation Results

1.0 Introduction and Background

This subappendix presents the results of the data gaps evaluation and the Part A Phase 2 sampling program for Solid Waste Management Unit (SWMU) 1 – Former Percolation Beds at the Pacific Gas and Electric Company (PG&E) Topock Compressor Station in Needles, California. The process for the data gaps evaluation is outlined in Sections 2.0 through 6.0 of the main text of Appendix A, Part A Phase 1 Data Gaps Evaluation Report, to the Soil RCRA Facility Investigation/Remedial Investigation (RFI/RI) Work Plan.

1.1 Background

SWMU 1, the Former Percolation Bed, is located outside the facility fence line in the bed of Bat Cave Wash, as depicted in Figure C1-1. (All tables and figures appear at the end of the subappendix.) SWMU 1 is located on both PG&E property and property owned by the Havasu National Wildlife Refuge and managed by the United States Fish and Wildlife Service. The southern boundary of SWMU 1 is roughly in line with the water treatment system in the lower yard of the compressor station, and the northern boundary of SWMU 1 is in the vicinity of the access road leading from the lower yard into Bat Cave Wash. PG&E completed closure of the former water treatment system that consisted of the sludge drying beds (SWMU 5), chromate reduction tank (SWMU 6), process pump tank (SWMU 8), transfer sump (SWMU 9), transfer piping (Area of Concern [AOC] 18), the oil/water holding tank (Unit 4.3), the oil/water separator (Unit 4.4), and the portable waste-oil storage tank (Unit 4.5). These units are located within the fence line of the compressor station and are addressed in Appendix B to the Soil RFI/RI Work Plan. In the 1955 aerial photograph, an apparent round impoundment area with white powder material is located in the lower yard of the compressor station, south of the sludge drying bed (SWMU 5). This area has been identified as AOC 21 in Figure C1-2, and is also addressed in Appendix B of this work plan.

Based on historical aerial photographs, it appears that during the 1950s, the facility discharged wastewater containing chromium (cooling-tower blowdown) wastewater into Bat Cave Wash without any impoundment. Wastewater was released to the wash through two pipes that ran from the sludge drying bed (SWMU 5) area in the 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 in Figure C1-2 as "historical discharge piping." From about 1964 to approximately 1971, the facility discharged wastewater containing chromium to a percolation bed and allowed water to percolate into the ground and/or evaporate. The chromium-containing wastewater was combined with a small quantity (approximately 5 percent) of treated water from the oily waste treatment system for the station.

A broken pipe was observed protruding from the western slope of Bat Cave Wash in the approximate location of the northern historical discharge piping shown in Figure C1-2. At the request of the California Environmental Protection Agency, Department of Toxic Substances Control, PG&E will sample at the toe of the slope below the pipe in Bat Cave Wash. Below the protruding pipe there are large pieces of concrete trailing down the slope, and at the toe of the slope near the floor of Bat Cave Wash there is a large piece of concrete and a piece of the broken pipe that appears to be stained green. During the April 24, 2012 site walk, PG&E and the agencies concluded that the large piece of concrete near the floor of Bat Cave Wash and the nearby piece of green stained pipe would have to be removed in order to allow sampling. The concrete and pipe will be disposed of as investigation-derived waste according to applicable regulatory laws. After removal of the piece of concrete and stained pipe, soil samples will be collected in this area to assess potential contamination associated with discharges from the pipe on the slope.

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 a January 2010 storm event resulted in the movement of large gravel and cobbles from south of SWMU 1/AOC 1 to the area near where the Debris Ravine (AOC 4) enters Bat Cave Wash and as far north as the pipeline overcrossing (in the vicinity of SSB-1). Based on a site reconnaissance conducted following the 2006 event, data from surface and near-surface soil sample locations collected prior to the 2006 storm event may no longer be representative of site conditions. However, deeper soil samples (below 2 to 3 feet below ground surface [bgs]) did not appear to be affected by the 2010 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 during the January 2010 storm event. Although there was damage to well MW-38 (installed within Bat Cave Wash), most of the 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 west side of Bat Cave Wash. Based on this visual reconnaissance of Bat Cave Wash, most of the soil samples collected during the 2008 Phase 1 investigation are 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.

1.2 Conceptual Site Model

A graphical conceptual site model for SWMU 1 has been developed based on the above site history and background, as shown in Figure C1-2. Table C1-1 presents the primary sources, primary source media, potential release mechanisms, secondary source media, and potential secondary release mechanisms for SWMU 1. A detailed discussion of the migration pathways, exposure media, exposure routes, and human and ecological receptors is included in the Soil Part A Data Quality Objectives (DQOs) Technical Memorandum, which is presented as Appendix A to the Part A Phase 1 Data Gaps Evaluation Report.

For SWMU 1, the primary source of contamination is historical direct discharge of untreated wastewater into Bat Cave Wash and the Former Percolation Bed; therefore, surface soil in

SWMU 1 was the primary source medium. Contaminated wastewater infiltrated and impacted subsurface soil and groundwater, as evidenced by hexavalent chromium contamination in groundwater. From surface soil, soluble contaminants could have migrated to subsurface soils. Subsurface soil may act as a secondary source medium to groundwater.

Historically, chemicals of potential concern (COPCs) in surface soil in SWMU 1 may have been eroded and entrained in stormwater/surface water runoff during flow events and may have been subsequently re-deposited downstream in Bat Cave Wash (AOC 1). The thick vegetation, widening of the channel near the end of Bat Cave Wash, and blockage of flow by National Trails Highway greatly reduces the energy of flow during runoff events, resulting in deposition of entrained soil within the vegetated area in AOC 1 (downstream migration of contamination from SWMU 1 is addressed in AOC 1). Repeated erosion and deposition of soil at SWMU 1 may have resulted in mixing of surface and near-surface soils at SWMU 1. If released, volatile organic compounds (VOCs) in surface soils would be expected to have been degraded by heat and light and are likely no longer present.

Because chromium-containing wastewater from the facility 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 is constrained within the boundaries of SWMU 1 (contamination outside of SWMU 1 is addressed in AOC 1). The vertical extent of soil contamination within SWMU 1 is not defined.

Contamination associated with SWMU 1 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. Two possible sources of white powder material in SWMU 1 are residual mineral salts from the percolation pond and water-conditioning (lime treatment) sludge from the sludge drying beds. Lime treatment is a chemically simple process involving the addition of lime (calcium hydroxide) and soda ash (Na_2CO_3) 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 compressor station. The water-conditioning sludge produced is primarily calcium carbonate with smaller quantities of magnesium hydroxide, both of which are poorly soluble at normal pH (American Water Works Association, 1981). Water-conditioning sludge is generally low in contaminant concentrations, whereas residual mineral salts from the percolation bed may contain higher concentrations of chromium.

Windblown contamination from SWMU 1 is influenced by wash topography. Windblown contaminant deposition, if any, is expected to be limited to surface soils. Windblown contaminant deposition, if any, outside of SWMU 1 is addressed in AOC 1.

Based on the site history and background and conceptual site models, Part A Phase 1 and historical soil samples were collected within areas of historical discharge of chromium-containing wastewater from the facility. Similarly, trench samples in the eastern wall of Bat Cave Wash were located in areas where white powder material was present.

1.3 SWMU 1 Data

Forty-four historical soil samples were collected from 15 locations (MW-9, SSB-2 through SSB-5, WP-1 through WP-6, WP-Blank1, WP-Blank2, T-3-B, and P-2) in SWMU 1, as shown in Figure C1-1. Samples were generally collected from 0 to 10 feet bgs; however, the MW-9 samples were collected to 87 feet bgs. Historical soil samples were analyzed for five constituents: total chromium, hexavalent chromium, copper, nickel, and zinc. A few historical samples were also analyzed for barium, lead, molybdenum, and vanadium.

During the 2008 Soil Part A Phase 1 investigation, 142 soil samples were collected from 29 sample locations (SWMU1-1 through SWMU1-17, SWMU1-SP-1h, SWMU1-WP-3a, SWMU1-WP-3h, SWMU1-WP-5a, SWMU1-WP-5h, SWMU1-WP-6a, SWMU1-WP-6h, SWMU1-WP-7, SWMU1-WP-8, SWMU1-WP-9, SWMU1-WP-10, and SWMU1-WP-T3a), as shown in Figure C1-1. The samples were generally collected at sample depths of 0 to 0.5, 2 to 3, 5 to 6, and 9 to 10 feet bgs, with SWMU1-3 sampled down to 80 feet and SWMU1-15 sampled down to 90 feet. Soil Part A Phase 1 soil samples were analyzed for Title 22 metals, hexavalent chromium, VOCs, semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), pH, pesticides, and polychlorinated biphenyls (PCBs). Surface soil samples were not analyzed for VOCs. Ten percent of the Phase 1 soil samples collected in SWMU 1 (16 soil samples) were analyzed for the full inorganic and organic suites per the CERCLA Target Analyte List and Target Compound List (TAL/TCL). In addition, synthetic precipitation leaching procedure (SPLP) extraction was performed on a soil sample collected at 2 to 3 feet bgs at location SWMU1-8 and soil samples collected at 5 to 6 feet bgs at sample locations SWMU1-1 and SWMU1-3, as shown in Table C1-2. The leachate from the SPLP extractions was analyzed for total and hexavalent chromium. Phase 1 data were validated, and the data quality evaluation is included Appendix D to the Part A Phase 1 Data Gaps Evaluation Report.

In addition, nine trenches (SWMU1-WP-1h, SWMU1-WP-2h, SWMU1-WP-3h, SWMU1-WP-5h, SWMU1-WP-6h, SWMU1-WP-7, SWMU1-WP-8, SWMU1-WP-9, and SWMU1-WP-10) were excavated on the eastern side of SWMU 1 to evaluate the extent of white powder, as shown in the inset of Figures C1-1 and C1-3 through C1-10. A photo log of the trenches is included as Appendix B4 of Appendix B to the Data Gaps Evaluation Report. Four samples of white powder material were collected from four trenches: SWMU1-WP-5h (collected at 2 to 3 feet bgs), SWMU1-WP-6h (collected at the surface [0 to 0.5 foot bgs]), SWMU1-WP-7 (collected at 2 to 3 feet bgs), and SWMU1-WP-10 (collected at 2 to 3 feet bgs). The white powder samples were analyzed for Title 22 metals, hexavalent chromium, VOCs, SVOCs, PAHs, TPH, and pH. One white powder material sample was also analyzed for the full inorganic and organic suites per TAL/TCL.

All historical and Part A Phase 1 data considered Category 1 were used as inputs to the four DQO decisions for SWMU 1.

2.0 Decision 1 – Nature and Extent

This section describes the nature and extent of residual soil concentrations of COPCs and chemicals of potential ecological concern (COPECs) at SWMU 1. Laboratory analytical results for historical and Part A Phase 1 soil samples at SWMU 1 are presented in Tables C1-2 through C1-8. Suites of constituents that were 100 percent nondetect (SVOCs and VOCs) are not presented in the tables. Tables C1-2 through C1-8 also include data for white powder samples. Table C1-9 presents a statistical summary of soil analytical results for COPCs and COPECs that were detected in soil samples, as well as COPCs and COPECs that were all nondetect but for which one or more reporting limits exceeded the interim screening level. The white powder samples are not included in the statistical summary presented in Table C1-9. The results of the nature and extent evaluation for the white powder samples are presented separately in Section 2.3.

2.1 Summary of SWMU 1 Soil Data

Pesticides, SVOCs, VOCs, TPH-gasoline, antimony, beryllium, cadmium, mercury, silver, thallium, cyanide, several PAHs, and several congeners of PCBs were not detected in soil samples collected in SWMU 1.

Table C1-9 lists the 37 constituents detected at SWMU 1. These include four calculated quantities (benzo(a)pyrene equivalents, total low-molecular-weight PAHs, total high-molecular-weight PAHs, and total PCBs). Nine of these constituents (aluminum, calcium, iron, magnesium, manganese, potassium, sodium, Aroclor-1254, and total PCBs) were detected in the TAL/TCL samples.

Twenty-one of these constituents (aluminum, iron, sodium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, total low-molecular-weight PAHs, total high-molecular-weight PAHs, benzo(a)pyrene equivalent, Aroclor-1254, total PCBs, TPH-diesel, and TPH-motor-oil) were detected at concentrations below their respective interim screening levels. Sixteen constituents (arsenic, barium, calcium, total chromium, hexavalent chromium, cobalt, copper, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, vanadium, and zinc) were detected one or more times at concentrations exceeding the interim screening levels and are discussed below.

Nine constituents (total chromium, hexavalent chromium, cobalt, copper, molybdenum, nickel, vanadium, zinc, and calcium) were detected at concentrations exceeding the interim screening level four or more times; the distributions of these constituents are shown in Figures C1-1 and C1-3 to C1-9. A figure has not been created for calcium since it is considered an essential nutrient, and residential and commercial/industrial California human health screening levels (CHHSLs) and an ecological comparison value (ECV) have not been established for this compound.

2.2 Nature and Extent Evaluation

This section describes the nature and extent of residual soil concentrations of COPCs and COPECs at SWMU 1. Laboratory analytical results for historical and Part A Phase 1 soil samples and the white powder samples at SWMU 1 are presented in Tables C1-2 through C1-8. Table C1-9 presents a statistical summary of soil analytical results for COPCs and COPECs that were either detected above the laboratory reporting limits or not detected but where the reporting limits for one more samples was greater than the interim screening value. White powder data are not included in this soil data statistical summary. Soil data are discussed first, followed by a discussion of the white powder sample data.

As discussed in Section 3.2 of the Part A Phase 1 Data Gaps Evaluation Report, multiple factors were considered to assess whether the nature and extent of a specific constituent has been adequately delineated. Section 2.5 of this subappendix summarizes the constituents that may require further evaluation, and Section 6.0 of this subappendix provides the rationale for proposed Phase 2 sample locations to fill identified data gaps.

2.2.1 Arsenic

Arsenic was detected in 134 of 141 soil samples collected at SWMU 1. At two locations (SWMU1-WP-3A at 9 to 10 feet bgs and SWMU1-WP-5a at 5 to 6 feet bgs), the detected concentrations of arsenic (12 milligrams per kilogram [mg/kg]) slightly exceeded the interim screening level of 11 mg/kg (background threshold value [BTV]), as shown in Tables C1-3 and C1-9. The same two samples also exceeded the ECV of 11.4 mg/kg. These locations are located along the center of SWMU 1. Samples with concentrations below the screening levels surround these two locations laterally. At each location, concentrations in deeper samples are below the screening levels.

2.2.2 Barium

Barium was detected in 149 of 149 soil samples collected from SWMU 1. At two locations, the detected concentrations of barium exceeded the interim screening level of 410 mg/kg (BTV/ECV) (SWMU1-15 [560 mg/kg at 89 to 90 feet bgs] and SWMU1-WP-9 [1,900J mg/kg at 2 to 3 feet bgs]), as shown in Tables C1-3 and C1-9. None of the detected concentrations exceeded the residential and commercial/industrial CHHSL of 5,200 mg/kg and 63,000 mg/kg, respectively. The two locations with exceedances of the BTV/ECV are in the southwestern portion of SWMU 1. Samples with concentrations below the interim screening level are located to the north, east, and south of these locations but not the west. At SWMU1-WP-9, concentrations in deeper samples are well below the interim screening level. At SWMU1-15, all other samples were located above 89 to 90 feet bgs. All of these samples had barium concentrations well below the BTV. Therefore, because the elevated concentration of barium detected at depth does not appear to be related to a surface release, no further characterization is needed for barium in this area. Also, while the concentration of barium in the deepest sample exceeds the BTV, it is well below the CHHSL.

2.2.3 Total Chromium

Total chromium was detected in 185 of 185 soil samples collected at SWMU 1. Detected concentrations of total chromium exceeded the interim screening level of 39.8 mg/kg (BTV/ECV) 73 times (with a maximum detected concentration of 3,200 mg/kg at SWMU1-1 at 5 to 6 feet bgs), as shown in Tables C1-3 and C1-9 and Figure C1-1. Twenty-six of the detected concentrations of total chromium exceeded the United States Environmental Protection Agency residential regional screening level (RSL) for residential use (280 mg/kg), and seven of the detected concentrations exceeded the RSL for commercial use (1,400 mg/kg). The lateral extent of samples with concentrations exceeding the BTV encompasses all of SWMU 1. At 15 locations, the deepest samples have concentrations exceeding the BTV. Seven of these locations are along the eastern bank of Bat Cave Wash. In addition, five locations where only surface soil samples were collected (T-B-3, WP-1, WP-2, WP-Bank-1, and WP-Bank-2) showed concentrations above the BTV (three of these surface soil samples also exceeded the residential RSL). Samples with concentrations exceeding the residential RSL are located in the northern portion of SWMU 1 and the eastern bank of Bat

Cave Wash. Exceedances of the residential RSL are generally vertically bounded, except at the three surface soil locations described above and at location WP-6, where the deepest sample was collected at 2 feet bgs.

2.2.4 Hexavalent Chromium

Hexavalent chromium was detected in 48 of 185 soil samples collected at SWMU 1. Detected concentrations of hexavalent chromium exceeded the interim screening level of 0.83 mg/kg (BTV) 34 times (with a maximum detected concentration of 47.5 mg/kg at WP-1 at 0 feet bgs), as shown in Tables C1-3 and C1-9 and Figure C1-3. Four of the detected concentrations of hexavalent chromium exceeded the residential CHHSL (17 mg/kg), and one detected concentration exceeded the commercial/industrial CHHSL (37 mg/kg). None of the detected concentrations exceeded the ECV (139.6 mg/kg). The lateral extent of samples with hexavalent chromium concentrations exceeding the screening levels exist primarily along the northern portion of SWMU 1 and the eastern bank of Bat Cave Wash. At four subsurface locations, the deepest samples have concentrations exceeding screening levels. In addition, five surface soil samples (T-B-3, WP-1, WP-4, WP-Bank-1, and WP-Bank-2) and one shallow sample (WP-6 at 2 feet bgs) exceed the BTV, and deeper samples were not collected in these locations.

2.2.5 Cobalt

Cobalt was detected in 141 of 141 soil samples collected from SWMU 1. Detected concentrations of cobalt slightly exceeded the interim screening level of 12.7 mg/kg (BTV) 20 times and the ECV of 13 mg/kg 14 times (with a maximum detected concentration of 19 mg/kg at SWMU1-WP-6h), as shown in Table C1-3 and C1-9 and Figure C1-4. None of the detected concentrations exceeded residential or commercial/industrial RSLs (23 mg/kg and 300 mg/kg, respectively). The lateral extent of samples with concentrations exceeding screening levels appears to be limited to the southern half of SWMU 1. At five locations, the deepest samples have concentrations that slightly exceed the BTV and the ECV (the highest concentration is 16 mg/kg), but all detections are below the residential RSL.

2.2.6 Copper

Copper was detected in 184 of 185 soil samples collected at SWMU 1. Detected concentrations of copper exceeded the interim screening level of 16.8 mg/kg (BTV) 41 times (with a maximum detected concentrations of 61 mg/kg at SWMU1-WP-6h at 2 to 3 feet bgs), as shown in Tables C1-3 and C1-9 and Figure C1-5. Twenty-five detected concentrations exceeded the ECV (20.6 mg/kg), and no detected concentrations of copper exceeded the residential or commercial/industrial CHHSLs (3,000 mg/kg, and 38,000 mg/kg, respectively). The lateral extent of samples with concentrations exceeding the screening levels appears to be limited primarily to the southern half of SWMU 1, although one slight exceedance (22 mg/kg) of the ECV was identified at SWMU1-2 in the northern portion of SWMU 1. At seven locations, the deepest samples have concentrations exceeding the BTV and ECV. In addition, three surface samples (T-3-B, WP-2, and WP-BANK 2) have concentrations exceeding the BTV, and deeper samples were not collected at these locations.

2.2.7 Lead

Lead was detected in 148 of 149 soil samples collected at SWMU 1. Detected concentrations of lead exceeded the interim screening level of 8.39 mg/kg (BTV/ECV) at two locations

(MW-9 [8.4 mg/kg at 87 feet bgs] and SWMU1-WP-7 [13 mg/kg at the surface]), as shown in Tables C1-3 and C1-9. None of the detected concentrations exceeded the residential or commercial/industrial CHHSLs (80 mg/kg and 320 mg/kg, respectively). These locations are located in the southern portion of SWMU 1. Samples with concentrations below screening levels surround each of these two locations laterally. At MW-9, the deepest sample contains lead at 8.4 mg/kg compared to the BTV of 8.39 mg/kg. At SWMU1-WP-7, concentrations in deeper samples are below screening levels.

2.2.8 Molybdenum

Molybdenum was detected in 31 of 149 soil samples collected form SWMU 1. Detected concentrations of molybdenum exceeded the interim screening level of 1.37 mg/kg (BTV) 22 times (with maximum detected concentration of 7.8 mg/kg at SWMU1-1), as shown in Table C1-3 and C1-9 and Figure C1-6. Eleven detected concentrations exceeded the ECV (2.25 mg/kg), and no detected concentrations of molybdenum exceeded residential and commercial/industrial CHHSL (380 mg/kg and 4,800 mg/kg, respectively). The lateral extent of samples with concentrations exceeding the BTV includes most of SWMU 1. At one location (2.8 mg/kg at SWMU1-2 at 9 to 10 feet bgs), the deepest samples have concentrations slightly exceeding the BTV. The concentration at SWMU1-2 also slightly exceeds the ECV.

2.2.9 Nickel

Nickel was detected in 185 of 185 soil samples collected from SWMU 1. Detected concentrations of nickel exceeded the interim screening level of 27.3 mg/kg (BTV/ECV) 20 times (with a maximum detected concentration of 51 mg/kg at SWMU1-WP-9 at 11 to 12 feet bgs), as shown in Tables C1-3 and C1-9 and Figure C1-7. None of the detected concentrations exceeded the residential or commercial/industrial CHHSLs (1,600 mg/kg and 16,000 mg/kg, respectively). The lateral extent of samples with concentrations exceeding screening levels appears to be limited to the southern portion of SWMU 1. At five locations, the deepest samples have concentrations exceeding the BTV. The vertical extent of nickel is not defined at SWMU1-WP-9 at 13 to 14 feet bgs.

2.2.10 Selenium

Selenium was detected in four of 141 soil samples collected from SWMU 1. Detected concentrations of selenium exceeded the interim screening level of 1.47 mg/kg (BTV/ECV) at two locations (1.6 mg/kg at SWMU1-16 at 5 to 6 feet bgs and 2.5 mg/kg at SWMU1-WP-9 at 2 to 3 feet bgs), as shown in Tables C1-3 and C1-9. None of the detected concentrations exceeded residential and commercial/industrial CHHSLs (380 mg/kg and 4,800 mg/kg, respectively). These locations are located in the southern portion of SWMU 1. Samples with concentrations below screening levels surround each of these two locations laterally. At SWMU1-16, the deepest sample (5 to 6 feet bgs) slightly exceeds the screening level (1.6 mg/kg compared to the BTV of 1.47 mg/kg). At SWMU1-WP-9, concentrations in deeper samples are below screening levels.

2.2.11 Vanadium

Vanadium was detected in 149 of 149 soil samples collected from SWMU1. Detected concentrations of vanadium slightly exceeded the interim screening level of 52.2 mg/kg (BTV/ECV) nine times (with a maximum detected concentration of 57 mg/kg at SWMU1-15 at 40 to 50 feet bgs), as shown in Table C1-3 and C1-9 and Figure C1-8. None of the detected concentrations of vanadium exceeded residential and commercial RSLs (390 mg/kg and 5,200 mg/kg, respectively). The lateral extent of samples with concentrations exceeding screening levels appears to be limited to the southern half of SWMU 1. At three locations (SWMU1-T3a, SWMU1-WP-6a, and SWMU-WP-9), the deepest samples have concentrations slightly exceeding the BTV, with concentrations of 53 mg/kg, 55 mg/kg, and 56 mg/kg, respectively.

2.2.12 Zinc

Zinc was detected in 185 of 185 soil samples collected at SWMU 1. Detected concentrations of zinc exceeded the interim screening level of 58 mg/kg (BTV/ECV) 37 times (with a maximum detected concentration of 673 mg/kg [surface soil sample T-3-B]), as shown in Tables C1-3 and C1-9 and Figure C1-9. None of the detected concentrations exceeded residential and commercial CHHSLs (23,000 mg/kg and 100,000 mg/kg, respectively). The lateral extent of samples with concentrations exceeding screening levels is generally limited to the northern portion of SWMU 1 and a portion of the east bank of Bat Cave Wash. At 10 locations, the deepest samples have concentrations exceeding screening levels. In addition, four surface samples (T-3-B, WP-2, WP-4, and WP-Bank-2) and one shallow soil sample (WP-6 at 2 feet bgs) have concentrations exceeding the BTV; deeper samples were not collected at these locations.

2.2.13 Target Analyte List/Target Compound List Constituents

Ten percent of the Phase 1 soil samples collected in SWMU 1 (16 soil samples) was analyzed for the full inorganic and organic suites per the CERCLA TAL/TCL. Aluminum, calcium, iron, magnesium, manganese, potassium, sodium, Aroclor-1254, and total PCBs were detected in the SWMU 1 soil samples analyzed for the complete TAL/TCL suite of compounds. These constituents are discussed below.

Aluminum was detected in 16 of 16 surface soil samples collected from SWMU 1. None of the detected concentrations exceeded the BTV (16,400 mg/kg). The maximum detected concentration was 12,000 mg/kg at SWMU1-11. Remaining detected concentrations of aluminum ranged from 5,900 to 11,000 mg/kg), as shown in Tables C1-4 and C1-9. None of the detected concentrations exceeded residential and commercial CHHSLs (77,000 mg/kg and 990,000 mg/kg, respectively). An ECV has not been established for aluminum.

Calcium was detected in 19 of 19 surface soil samples collected from SWMU 1. Detected concentrations of calcium exceeded the interim screening level of 66,500 mg/kg (BTV) four times (with a maximum detected concentration of 280,000 mg/kg at WP-BANK 1), as shown in Tables C1-4 and C1-9. Residential and commercial/industrial CHHSLs and an ECV have not been established for calcium. The lateral extent of samples with concentrations exceeding the BTV appears to be limited primarily on the eastern slope of Bat Cave Wash in the white powder area, although one exceedance (255,000J mg/kg) of the BTV was identified at P-2Soil in the central portion of SWMU 1 along the western boundary.

Iron was detected in 27 of 27 soil samples collected from SWMU 1. The maximum detected concentration of iron was 25,000 mg/kg at both SWMU1-1 at 0 to 0.5 foot bgs and SWMU1-WP-7, also at 0 to 0.5 foot bgs. All detected concentrations are below the interim screening level of 55,000 mg/kg (residential RSL), as shown in Tables C1-4 and C1-9.

Remaining detected concentrations of iron ranged from 4,760 to 24,000J mg/kg. Residential and commercial/industrial CHHSLs and an ECV have not been established for iron.

Magnesium was detected in 19 of 19 surface soil samples collected from SWMU 1. Detected concentrations of magnesium exceeded the interim screening level of 12,100 mg/kg (BTV) two times (14,700J mg/kg at P-2Soil at 3.5 feet bgs and 14,300 mg/kg at WP-BANK 2 at 0 to 0.5 foot bgs), as shown in Tables C1-4 and C1-9. Remaining detections ranged from 6,300 to 12,000 mg/kg. Residential and commercial/industrial CHHSLs and an ECV have not been established for magnesium. The two samples with concentrations exceeding the BTV are located in the southern portion of SWMU 1.

Manganese was detected in 27 of 27 samples collected from SWMU 1. One detected concentration of magnesium slightly exceeded the interim screening level of 402 mg/kg (BTV/ECV) (detected concentration of 526 mg/kg at MW-9), as shown in Tables C1-4 and C1-9. The detected concentration did not exceed the residential and commercial/industrial CHHSLs (1,800 mg/kg and 23,000 mg/kg, respectively). This exceedance was detected in the deepest sample collected at this location (87 feet bgs), and concentrations in the overlying samples at this location were well below the BTV. Remaining detected concentrations ranged from 67.4 to 340 mg/kg. Therefore, because the elevated concentration of manganese detected at depth does not appear to be related to a surface release, no further characterization is needed for manganese in this area.

Potassium was detected in 19 of 19 surface soil samples collected from SWMU 1. One detected concentrations of potassium exceeded the interim screening level of 4,400 mg/kg (BTV) (detected concentration of 4,900 mg/kg at SWMU1-17), as shown in Tables C1-4 and C1-9. The remaining detected concentrations ranged from 1,040 to 3,200 mg/kg. Residential and commercial/industrial CHHSLs and an ECV have not been established for potassium.

Sodium was detected in 13 of 19 surface soil samples collected from SWMU 1. The maximum detected concentration of sodium was 1,800 mg/kg at WP-Bank-1), which is below the interim screening level of 2,070 mg/kg (BTV), as shown in Tables C1-4 and C1-9. Remaining detected concentrations of sodium ranged from 190 to 1,650 mg/kg. Residential and commercial/industrial CHHSLs, RSLs, and an ECV have not been established for sodium.

The PCB Aroclor-1254 was detected in nine of 21 soil samples collected from SWMU 1; both surface (0 to 0.5 foot bgs) and shallow soil (2 to 3 feet bgs) samples were collected. The maximum detected concentration of Aroclor-1254 of 200 micrograms per kilogram (µg/kg) was detected at SWMU1-WP-7 at 0 to 0.5 foot bgs. Remaining detected concentration of Aroclor-1254 range from 18 to 96 µg/kg. None of the detected concentrations of Arcolor-1254 exceeded the interim screening level of 220 µg/kg (residential RSL), as shown in Table C1-8. To assist with evaluation of PCBs for ecological risk, detected concentrations of the Aroclors (only Aroclor-1254 at SWMU 1) were summed, and the total PCB values were compared to the ECV. The maximum calculated value for total PCBs was 200 µg/kg, which is below the total PCB ECV of 204 µg/kg, as shown in Table C1-8. The remaining calculated total PCB concentrations ranged from 18 to 96 µg/kg.

As discussed in Section C.2 of the main text of Appendix C, PG&E recommends that PCBs be evaluated further in SWMU 1. PG&E also recommends aluminum, calcium, iron, magnesium, manganese, potassium, and sodium not be considered COPCs/COPECs for this SWMU, and no further sampling is proposed for these constituents. These constituents have been fully discussed in Section C.2 of Appendix C.

2.3 White Powder Samples

As previously mentioned, eight trenches were excavated on the eastern side of SWMU 1 to evaluate the extent of white powder on the hillside, as shown in the inset of Figures C1-1 and C1-3 to C1-9. A photo log of the trenches is included as Appendix B4 of Appendix B to the Data Gaps Evaluation Report. Trench SWMU1-WP-2h defines the northern extent of the white powder, and the southern extent is defined by trench SWMU1-WP-10 and the topography just south of trench SWMU1-WP-10.

White powder material was encountered at several places in SWMU 1 during trenching activities into the eastern sidewall of Bat Cave Wash. Four samples of white powder material (sample locations SWMU1-WP-5h at 2 to 3 feet bgs, SWMU1-WP-6h at the surface (0 to 0.5 foot bgs), SWMU1-WP7 at 2 to 3 feet bgs, and SWMU1-WP-10 at 2 to 3 feet bgs) were collected and sent to the laboratory for analysis. The white powder material in SWMU 1 was mapped, and results of the mapping are presented in Appendix B to the Data Gaps Evaluation Report. In general, the following compounds were detected in the white powder material samples: arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Molybdenum was detected in one of the white powder material samples. Of those compounds detected, total chromium, hexavalent chromium, molybdenum, and zinc were detected above their respective interim screening levels. The maximum detected concentrations of total chromium in the white powder samples was 1,400 mg/kg (exceeding the BTV and equal to the industrial RSL) collected at SWMU1-WP-10 at 2 to 3 feet bgs; hexavalent chromium was 18.2 mg/kg (exceeding the BTV and residential CHHSL) collected at SWMU1-WP-7 at 2 to 3 feet bgs; molybdenum was 3.4 mg/kg (exceeding the BTV/ECV) collected at SWMU1-WP-7 at 2 to 3 feet bgs; and zinc was 360 mg/kg (exceeding the BTV/ECV) collected at SWMU1-WP-10 at 2 to 3 feet bgs.

The extent of white powder material in SWMU 1 has been defined to the north, south, and west of the white powder area; however, the extent of the white powder has not been defined to the east of the white powder area on the slope leading up to the compressor station fence line.

2.4 Central Tendency Comparison to Background Threshold Values

Sixteen metals (arsenic, barium, calcium, total chromium, hexavalent chromium, cobalt, copper, lead, magnesium, manganese, molybdenum, potassium, nickel, selenium, vanadium, and zinc) were detected above their respective Topock site-specific BTVs in soil collected from SWMU 1, as shown in Table C1-9. A central tendency comparison was performed for 14 of these 16 metals (arsenic, barium, calcium, total chromium, cobalt, copper, lead, magnesium, manganese, molybdenum, potassium, nickel, vanadium, and zinc) to compare the SWMU 1 soil data set for these metals with the corresponding Topock soil background data set to determine whether a difference exists between the two populations and if additional sampling is required for a given metal (see Figure 3-1 in the Part A Phase 1 Data Gaps Evaluation Report and Table C1-10 of this subappendix). Metals in either the SWMU 1 data or background data set that were detected infrequently (less than five detects) or had a limited number of results (less than eight) were not tested. There were insufficient detections of selenium at SWMU 1 to conduct the test, and there were insufficient detections of hexavalent chromium in the background data set to allow for a central tendency comparison; however, additional investigation is proposed to evaluate the lateral and vertical extents of hexavalent chromium at SWMU 1.

No statistical difference between the two populations was noted for arsenic, barium, calcium, lead, magnesium, manganese, molybdenum, potassium, nickel, and vanadium, as shown in Table C1-10. However, results from the Gehan test show that site concentrations for total chromium, cobalt, copper, and zinc may exceed background. The lateral and vertical extents of cobalt have been adequately defined, as discussed above, and additional sampling is proposed for total chromium, copper, and zinc. Although the Gehan test indicated that the distribution of nickel and molybdenum detections in the site data set is statistically comparable to background, additional sampling is also recommended to further evaluate the extent of nickel and molybdenum within SWMU 1.

2.5 Nature and Extent Conclusions

Based on the site history, background, and conceptual site model, qualitative review indicates than decision error has been held to an acceptable level. Sufficient data of acceptable quality have been attained by the collection of Part A Phase 1 and pre-2008 soil samples in areas most likely to have been impacted by the wastewater discharges to the Bat Cave Wash and the former percolation bed, white powder on the east bank of Bat Cave Wash, and potential stormwater runoff from the lower yard of the compressor station. Review of the nature and extent discussions above indicates that the lateral extent of samples with concentrations exceeding interim screening levels is variable, with the majority constituents exceeding screening levels located in the northern portion of SWMU 1 and along the eastern bank of Bat Cave Wash. Exceedances of total chromium and hexavalent chromium are present throughout this unit. Based on the review of the data for SWMU 1, the lateral extent of molybdenum extends to the SMWU 1 boundary. The vertical extent of chromium, hexavalent chromium, copper, molybdenum, nickel, and zinc has not been completely defined in the bottom of the wash. In addition, soil sampling beneath the broken green stained pipe and concrete at the toe of the slope in Bat Cave Wash near the northern gate in the lower yard is required to assess the nature and extent of possible contamination emanating from the pipe in the bank above the wash.

Based on review of the data and the Part A DQOs, three data gaps were identified to resolve Decision 1 – Nature and Extent, and limited additional sampling is recommended in Phase 2 to fill the following data gaps. Identified data gaps were discussed during data gaps evaluation meetings in October and November 2010 and January 2012. Subsequent revisions to the data gaps have occurred; however, the data gap numbers from those meetings have been retained.

- Data Gap #1 – Vertical extent of contamination within the SWMU 1 boundary
- Data Gap #2 – Lateral extent of white powder upslope from the white powder area to the compressor station boundary
- Data Gap #5 – Assess potential contamination at the toe of the slope in Bat Cave Wash below a potential historical discharge pipe

Proposed Phase 2 sample locations are presented in Section 6.0 of this subappendix.

3.0 Decision 2 – Data Sufficiency to Estimate Representative Exposure Point Concentrations

The principal consideration for Decision 2 was whether there were sufficient data to estimate a representative exposure point concentration (EPC) for the combined SWMU 1/AOC 1 area. For Decision 2, SWMU 1 data were combined with AOC 1 data to determine if SWMU 1/AOC 1 data are sufficient to conduct human health and ecological risk assessments based on the criteria described in Section 4.0 of the Data Gaps Evaluation Report. This is consistent with the approach to exposure assessment described in the *Human and Ecological Risk Assessment Work Plan, Topock Compressor Station, Needles, California* (ARCADIS, 2008). Category 1 soil sampling results and results from location AOC1-BCW-6, in an area of soil transitioning to sediment, were included in the combined SWMU 1/AOC 1 data set for the Decision 2 evaluation.

Table C2-10 in Appendix C2 summarizes the results of the evaluation to determine if data are sufficient to estimate representative EPCs. Table C2-10 documents the review of all combined AOC 1/SWMU 1 data. Data were reviewed for all chemicals that were detected in at least one sample and that exceeded at least one comparison value. The samples designated as "white powder" were included in the data reviewed as a conservative measure, assuming that exposure to white powder areas would not differ significantly from exposure to surrounding soil areas. In general, existing data are adequate to support soil EPC development for detected chemicals that exceeded one or more comparison values (12 metals, three Contract Laboratory Program inorganics, and PAHs) as described in Sections 3.1 through 3.3 of this subappendix. Phase 2 data will be added to the existing data set to calculate the final EPC (after Decision 1 is satisfied).

3.1 Metals

Sufficient data (numbers of samples and detections) are available to calculate EPCs for arsenic, barium, total chromium, hexavalent chromium, cobalt, copper, lead, molybdenum, nickel, vanadium, and zinc using the ProUCL software, as shown in Table C2-10 in Appendix C2. For selenium, additional data collection is not expected to significantly change the results of the risk assessment because the compound is very infrequently detected (that is, additional nondetects would be expected).

3.2 Inorganics

Sufficient data (numbers of samples and detections) are available to calculate EPCs for calcium, magnesium, and potassium using ProUCL, although additional data are not available for deeper locations associated with the scouring scenarios. No additional data collection appears warranted because it is reasonable to assume that the nature and extent of these inorganics in the shallow exposure intervals (0 to 0.5 foot bgs or 0 to 3 feet bgs) are representative of the deeper depths. In addition, maximum concentrations of calcium, magnesium, and potassium detected in the standard exposure intervals (0 to 0.5, 0 to 3, 0 to 6, and 0 to 10 feet bgs) are comparable to background (all detections were below the BTV, as discussed in Tables C1-4 and C1-9).

3.3 Polycyclic Aromatic Hydrocarbons

Sufficient data (numbers of samples and detections) are available to calculate EPCs for benzo(a)pyrene toxicity equivalents and high-molecular-weight PAHs using ProUCL.

4.0 Decision 3 – Potential Threat to Groundwater from Residual Soil Concentrations

A conservative, three-tiered approach was used in the evaluation to assess the potential impact to groundwater from source areas in the vadose zone. A full description of the three-tiered approach is provided in Section 5.0 of the Part A Phase 1 Data Gaps Evaluation Report. Since the southern portion of AOC 1 encompasses SMWU 1, the data from these two areas were analyzed together for Decision 3. Figure C-1 in Appendix C shows the location of the combined SMWU 1/AOC 1 South subarea.

The following preliminary analysis was performed with the existing data set to assess the potential threat to groundwater and to assess if additional data, above and beyond that necessary for Decision 1, are needed to resolve Decision 3. Additional evaluation will be performed as appropriate, as data are collected to resolve Decision 1. Data collected to satisfy Decision 1 – Nature and Extent evaluation will provide the final representative data set that will be used to assess the potential threat to groundwater. The preliminary conclusions regarding the threat to groundwater are based on available data and will be revisited after the implementation of the soil investigation. The combined data set will then be evaluated for data gaps, and further conclusions regarding the threat to groundwater will be provided to the agencies and stakeholders for review prior to submittal of the RFI/RI Volume 3. Table C1-11 presents the results of the tiered analysis for the SMWU 1/ AOC 1 South subarea.

Twelve metals were detected at concentrations above the BTVs. Of these 12 metals, only hexavalent chromium and molybdenum were detected at concentrations that exceeded the calculated soil screening levels, as shown in Table C1-12. Based on the initial screening model, the potential for hexavalent chromium and molybdenum to leach to groundwater was ruled out. Consequently, based on existing data, it appears that none of the metals detected in soil in subarea SWMU 1/AOC 1 South presents a potential threat to current or future groundwater, and no further sampling is required to address Decision 3 for SWMU 1/AOC 1 South. Data that is being collected to satisfy Decision 1 – Nature and Extent evaluation will be used to provide the final representative data set that will be used to assess the potential threat to groundwater.

5.0 Decision 4 – Data Sufficiency to Support the Corrective Measures Study/Feasibility Study

As discussed in Section 6.0 of the Part A Phase 1 Data Gaps Evaluation Report, various types of data will be needed to support the evaluation of technologies/remedial actions for the corrective measures study/feasibility study (CMS/FS). The types of data needed vary somewhat depending on the specific technology to be evaluated. The categories of data required for technologies that may be applicable to the areas outside the fence line include:

- Extent of COPCs/COPECs above action levels (required for all technologies).
- Waste characterization parameters (required if soil may be disposed of offsite).
- Constituent leachability (required to assess the need for fixation of leachable compounds and/or the feasibility of certain soil washing technologies).
- Soil physical properties (required for all technologies; however, the properties required vary among the different technologies).
- Surface and subsurface features (required to determine whether there are physical impediments to implementing specific technologies and/or remediating specific areas).
- If present, volumes of white powder and debris.

The following is a summary of data for SWMU 1 that are currently available to support CMS/FS. Data gaps identified for Decision 4 will be filled using samples being collected to fill data gaps identified for other decisions. Data will not be collected to solely fill Decision 4 data gaps.

5.1 Extent of COPCs and COPECs

A summary of the nature and extent of detected COPCs/COPECs is presented in Section 2.0 Decision 1 – Nature and Extent. The lateral and vertical extent of the COPCs and COPECs is discussed in Sections 2.2 and 2.3 of this subappendix. Data results for selected constituents are shown in Figures C1-1 and C1-3 through C1-9, and data gaps associated with lateral and vertical delineation are discussed in Section 6.0 of this subappendix.

5.2 Waste Characterization Parameters

Only partial waste characterization data are available to characterize the soil and other materials to be potentially removed for remedial action and disposed in an offsite permitted facility. While none of the soils or other materials is considered ignitable, corrosive, or reactive, data are lacking to complete the evaluation of the toxicity characteristic. Total chemical concentrations are available to characterize the soil, certain debris, and white powder material relative to California Title 22 total threshold limit concentrations (TTLC). The maximum concentrations of these metals for each of the units were compared to the TTLCs, and total chromium exceeded the TTLCs twice, as shown in Table C1-13. The maximum detected concentrations were also compared to the soluble threshold limit concentrations (STLCs). Concentrations of barium exceeded 10 times the STLC once, and total chromium exceeded 10 times the STLC 58 times, as shown in Table C1-13. In addition, total chromium also exceeded 20 times the toxicity characteristic leaching procedure (TCLP) in 37 samples, as indicated in Table C1-13. Because these metals have the potential to exceed STLC or TCLP thresholds, additional leachability testing for waste characterization purposes may be required if soil excavation and offsite disposal is chosen as a remedy. For the purposes of supporting the CMS/FS, the lack of STLC or TCLP analysis is not considered a data gap because the existing total concentrations are sufficient for the purposes of evaluating various remedial alternatives. Additional data regarding potential COPC/COPEC leachability include SPLP analysis for total and hexavalent chromium, as shown in Table C1-2. SPLP analysis was conducted only for soil samples (no white powder or debris samples were tested using SPLP). SPLP analysis of the white powder material is needed to support the CMS/FS.

5.3 Soil Physical Properties

Soil physical property data collected during the Part A Phase 1 soil investigation were limited to grain size analysis only. Specific soil physical properties data (that is, porosity, grain size, density, organic carbon content) are required to support the CMS/FS, as described in Table 6-1 in the Part A Phase 1 Data Gaps Evaluation Report. Additional soil physical parameter data are needed to support the CMS/FS.

5.4 Surface and Subsurface Features

While there is extensive information regarding surface and subsurface features at SWMU 1, additional information may be required once areas requiring remediation have been defined. Nearby roads and road structures, vegetation, and the location of bedrock are known for SWMU 1. However, subsurface utilities, including gas transmission pipelines and any culverts or other features, may have to be more precisely defined to evaluate the feasibility and cost of certain remedial alternatives and to prepare construction specifications.

6.0 Summary of Data Gaps, Proposed Phase 2 Soil Sample Locations to Fill Identified Gaps, and Access Restrictions

Based on the Part A DQO, data gaps were identified for two of the four decisions and are summarized below by decisions. Identified data gaps were discussed during data gaps evaluation meetings in October and November 2010 and January 2012. Subsequent revisions to the data gaps have occurred; however, the data gap numbers from those meetings have been retained.

- **Decision 1 – Nature and Extent**. The following data gaps were identified to resolve this decision:
  - Data Gap #1 – Vertical extent of contamination within SWMU 1 boundary
  - Data Gap #2 – Lateral extent of white powder upslope from white powder area to the compressor station boundary
  - Data Gap #5 – Assess potential contamination at the toe of the slope in Bat Cave Wash below a potential historical discharge pipe
- **Decision 2 (Data Sufficient to Estimate Representative Exposure Point Concentrations)**. No data gap was identified for this decision.
- **Decision 3 (Potential Threat to Groundwater from Residual Soil Concentrations).**
  - Data Gap #3 – Vertical extent of contamination to support refinement of the vadose leaching zone model

- **Decision 4 (Data Sufficient to Estimate Soil Properties and Contaminant Distribution in Support of the CMS/FS).** The following data gap was identified to resolve this decision**:**
  - Data Gap #4 – Soil physical parameters to support the CMS/FS

Table C1-14 summarizes the proposed Phase 2 sample locations, depths, rationale for each location, and analytes. Proposed Phase 2 sample locations are also shown in Figure C1-1 and Figures C1-3 through C1-10.

6.1 Access Restrictions

Most of the potential SWMU 1 Phase 2 sample locations are located at the bottom of Bat Cave Wash; no access restrictions are apparent, with the exception of potential subsurface boulders. The proposed Phase 2 sample locations not located in the wash are located near the compressor station fence line at the top of a very steep slope. A backhoe will need to be used to collect these samples. Slope stability may limit the amount of soil that can be removed for sampling.

7.0 References

American Water Works Association. 1981. *Lime Softening Sludge Treatment and Disposal.* Journal of the American Water Works Association. November.

ARCADIS. 2008. *Human and Ecological Risk Assessment Work Plan, Topock Compressor Station, Needles, California.* August.

———. 2009. *Technical Memorandum 4: Ecological Comparison Values for Additional Detected Chemicals in Soil.* July 1.

Tables

TABLE C1-1
Conceptual Site Model – SWMU 1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

Primary Source	Primary Source Media	Potential Release Mechanism	Secondary Source Media	Potential Secondary Release Mechanism
Runoff from compressor station	Surface Soil	Percolation and/or infiltration Potential entrainment in stormwater/surface water runoff	Surface Soil Shallow Soil Potential Sediments Potential Groundwater	Wind erosion and atmospheric dispersion of surface soil Potential volatilization and atmospheric dispersion/enclosed space accumulation Potential discharge of groundwater to surface water [a] Potential extracted groundwater[b]
Discharge of wastewater from compressor station to Bat Cave Wash/ percolation bed	Surface Soil	Percolation and/or infiltration Potential entrainment in stormwater/surface water runoff	Surface Soil Shallow Soil Potential Sediments Potential Groundwater	Wind erosion and atmospheric dispersion of surface soil Potential volatilization and atmospheric dispersion/enclosed space accumulation Potential discharge of groundwater to surface water [a] Potential extracted groundwater[b]

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

[b] Quantitative evaluation of the groundwater pathway was completed in the groundwater risk assessment (ARCADIS, 2009); Part A Phase I data will be reviewed in the data gaps assessment to evaluate potential fate impacts or current localized impacts to groundwater from soil.

TABLE C1-2

Synthetic Precipitation Leaching Procedure (SPLP) Extraction Results
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Topock Compressor Station, Needles, California

			SPLP Results in mg/L	
Location	**Sample Date**	**Depth (ft bgs)**	**Hexavalent Chromium**	**Chromium (total)**
SWMU1				
SWMU1-1	10/16/08	5-6	0.02 J	0.142
SWMU1-3	10/06/08	5-6	0.0107 J	0.107
SWMU1-8	10/15/08	2-3	0.0031 J	0.156

Notes:

ft bgs feet below ground surface
mg/L milligrams per liter
J concentration estimated by laboratory or data validation

TABLE C1-3
Sample Results: Metals
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Report
Pacific Gas and Electric Company 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**	**2.32**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.062**	**15,000**	**160**	**70**	**0.29**	**280**	**23**	**3,100**	**150**	**10**	**390**	**1,500**	**390**	**390**	**5.1**	**390**	**23,000**
Residential DTSC CHHSL [3]:				**30**	**0.07**	**5,200**	**16**	**39**	**17**	**NE**	**660**	**3,000**	**80**	**18**	**380**	**1,600**	**380**	**380**	**5**	**530**	**23,000**
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-9	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 C1-3
Sample Results: Metals
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Report
Pacific Gas and Electric Company 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**	**2.32**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.062**	**15,000**	**160**	**70**	**0.29**	**280**	**23**	**3,100**	**150**	**10**	**390**	**1,500**	**390**	**390**	**5.1**	**390**	**23,000**
Residential DTSC CHHSL [3]:				**30**	**0.07**	**5,200**	**16**	**39**	**17**	**NE**	**660**	**3,000**	**80**	**18**	**380**	**1,600**	**380**	**380**	**5**	**530**	**23,000**
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 C1-3
Sample Results: Metals
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Report
Pacific Gas and Electric Company 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**	**2.32**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.062**	**15,000**	**160**	**70**	**0.29**	**280**	**23**	**3,100**	**150**	**10**	**390**	**1,500**	**390**	**390**	**5.1**	**390**	**23,000**
Residential DTSC CHHSL [3]:				**30**	**0.07**	**5,200**	**16**	**39**	**17**	**NE**	**660**	**3,000**	**80**	**18**	**380**	**1,600**	**380**	**380**	**5**	**530**	**23,000**
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
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

TABLE C1-3
Sample Results: Metals
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

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
				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**	**2.32**	**52.2**	**58**
			Residential Regional Screening Levels [2]:	**31**	**0.062**	**15,000**	**160**	**70**	**0.29**	**280**	**23**	**3,100**	**150**	**10**	**390**	**1,500**	**390**	**390**	**5.1**	**390**	**23,000**
			Residential DTSC CHHSL [3]:	**30**	**0.07**	**5,200**	**16**	**39**	**17**	**NE**	**660**	**3,000**	**80**	**18**	**380**	**1,600**	**380**	**380**	**5**	**530**	**23,000**
			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**
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
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 [6]	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 [6]	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 [6]	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

TABLE C1-3

Sample Results: Metals

SWMU 1 - Former Percolation Bed (Former Holding Pond)

Soil Investigation Part A Phase 1 Data Gaps Report

Pacific Gas and Electric Company 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	2.32	52.2	58
Residential Regional Screening Levels [2]:				31	0.062	15,000	160	70	0.29	280	23	3,100	150	10	390	1,500	390	390	5.1	390	23,000
Residential DTSC CHHSL [3]:				30	0.07	5,200	16	39	17	NE	660	3,000	80	18	380	1,600	380	380	5	530	23,000
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-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
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 [6]	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
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	---	---	---	---	---	---	---	---	---	---	---
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

TABLE C1-3
Sample Results: Metals
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Report
Pacific Gas and Electric Company 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**	**2.32**	**52.2**	**58**
Residential Regional Screening Levels [2]:				**31**	**0.062**	**15,000**	**160**	**70**	**0.29**	**280**	**23**	**3,100**	**150**	**10**	**390**	**1,500**	**390**	**390**	**5.1**	**390**	**23,000**
Residential DTSC CHHSL [3]:				**30**	**0.07**	**5,200**	**16**	**39**	**17**	**NE**	**660**	**3,000**	**80**	**18**	**380**	**1,600**	**380**	**380**	**5**	**530**	**23,000**
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-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
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-BANK 1	11/23/98	0	N	---	---	---	---	---	5.5	261	---	10.3	---	---	---	3.8	---	---	---	---	23.4
WP-BANK 2	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 (0.52)	12	---	12.7	---	---	---	9.2	---	---	---	---	29.4
	11/13/98	Unknown	N	---	---	---	---	---	ND (0.53)	17.9	---	16.1	---	---	---	13.1	---	---	---	---	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

[1] Interim screening level is background value. If background value is not available then the lesser of the DTSC residential CHHSL or the ecological comparison value is used. If CHHSL is not available, it is the lesser of the USEPA residential regional screening level or the ecological comparison value.
[2] USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.
[3] California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). 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.
[6] white powder sample.

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.
USEPA	United States Environmental Protection Agency
DTSC	California Department of Toxic Substances Control
CHHSL	California human health screening levels
NE	not established
mg/kg	milligrams 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

TABLE C1-4

Sample Results: Contract Laboratory Program Inorganics
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**55,000**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**1,600**
Residential DTSC CHHSL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**NE**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
MW-9	07/01/97	10	N	---	---	11,400	---	190	---	---	---
	07/01/97	30	N	---	---	13,100	---	192	---	---	---
	07/01/97	50	N	---	---	9,580	---	139	---	---	---
	07/01/97	87	N	---	---	16,500	---	526	---	---	---
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-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) *
SWMU1-WP-6h	10/06/08 [6]	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	---	150	---	---	---
SSB-3	06/30/97	10	N	---	---	7,220	---	114	---	---	---
SSB-4	06/30/97	10	N	---	---	11,600	---	161	---	---	---

TABLE C1-4

Sample Results: Contract Laboratory Program Inorganics
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Contract Laboratory Program (CLP) Inorganics (mg/kg)							
Interim Screening Level[1] :				**16,400**	**66,500**	**55,000**	**12,100**	**402**	**4,400**	**2,070**	**0.9**
Residential Regional Screening Levels[2] :				**77,000**	**NE**	**55,000**	**NE**	**1,800**	**NE**	**NE**	**1,600**
Residential DTSC CHHSL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Ecological Comparison Values[4] :				**NE**	**NE**	**NE**	**NE**	**220**	**NE**	**NE**	**0.9**
Background[5] :				**16,400**	**66,500**	**NE**	**12,100**	**402**	**4,400**	**2,070**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Aluminum**	**Calcium**	**Iron**	**Magnesium**	**Manganese**	**Potassium**	**Sodium**	**Cyanide**
SSB-5	06/30/97	10	N	---	---	9,870	---	139	---	---	---
WP-BANK 1	11/23/98	0	N	---	280,000	4,760	12,000	67.4	1,040	1,800	---
WP-BANK 2	11/23/98	0	N	---	173,000	11,300	14,300	139	1,680	1,650	---
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	---

1 Interim screening level is background value. If background value is not available then the lesser of the DTSC residential CHHSL or the ecological comparison value is used. If CHHSL is not available, it is the lesser of the USEPA residential regional screening level or the ecological comparison value.

2 USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

3 California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil" November 2004 (January 2005 Revision). 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.

6 white powder sample.

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.
USEPA	United States Environmental Protection Agency
DTSC	California Department of Toxic Substances Control
CHHSL	California human health screening levels
NE	not established
mg/kg	milligrams 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

TABLE C1-5

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1] :				22,000	310,000	1,700,000	3,400,000	17,000,000	380	38	380	1,700,000	380	3,800	110	2,300,000	2,300,000	380	3,600	1,700,000	1,700,000	10,000	1,160	38
Residential Regional Screening Levels[2] :				22,000	310,000	1,700,000	3,400,000	17,000,000	380	15	380	1,700,000	380	3,800	110	2,300,000	2,300,000	380	3,600	1,700,000	1,700,000	NE	NE	15
Residential DTSC CHHSL[3] :				NE	NE	NE	NE	NE	NE	38	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	38
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	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	1-Methyl naphthalene	2-Methyl naphthalene	Acena phthylene	Acenaphthene	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
SWMU1-1	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 (5.3)
	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	4.5
	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 (4.5)
	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 (4.5)
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 (4.4)
	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 (4.5)
	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 (4.4)
	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 (4.5)
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 (4.4)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)
	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 (4.5)
	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 (4.6)
	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 (4.5)
	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 (4.7)
	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 (4.5)
	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 (4.5)
	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 (4.9)
	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 (5)
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 (4.4)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)	ND (5.2)	ND (5.2)	ND	ND	ND (4.5)
	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 (4.5)
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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)
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 (4.4)
	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 (4.4)
	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 (4.4)
	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 (4.5)

TABLE C1-5

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level[1] :	22,000	310,000	1,700,000	3,400,000	17,000,000	380	38	380	1,700,000	380	3,800	110	2,300,000	2,300,000	380	3,600	1,700,000	1,700,000	10,000	1,160	38
			Residential Regional Screening Levels[2] :	22,000	310,000	1,700,000	3,400,000	17,000,000	380	15	380	1,700,000	380	3,800	110	2,300,000	2,300,000	380	3,600	1,700,000	1,700,000	NE	NE	15
			Residential DTSC CHHSL[3] :	NE	NE	NE	NE	NE	NE	38	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	38
			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	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acena phthylene**	**Acenaphthene**	**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**
SWMU1-7	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	76	10
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.7)
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 (4.5)
	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 (23)
	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 (4.5)
	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 (4.6)
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 (4.4)
	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 (4.4)
	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 (4.5)
	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 (4.5)
	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 (4.6)
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	9.1
	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	57	200	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 (4.6)
	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 (4.7)
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 (4.4)
	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 (4.5)
	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 (4.5)
	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 (4.5)
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	5.6
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)
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 (4.4)
	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 (4.5)
	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 (4.5)
	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 (4.5)

TABLE C1-5

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
Interim Screening Level[1] :				**22,000**	**310,000**	**1,700,000**	**3,400,000**	**17,000,000**	**380**	**38**	**380**	**1,700,000**	**380**	**3,800**	**110**	**2,300,000**	**2,300,000**	**380**	**3,600**	**1,700,000**	**1,700,000**	**10,000**	**1,160**	**38**
Residential Regional Screening Levels[2] :				**22,000**	**310,000**	**1,700,000**	**3,400,000**	**17,000,000**	**380**	**15**	**380**	**1,700,000**	**380**	**3,800**	**110**	**2,300,000**	**2,300,000**	**380**	**3,600**	**1,700,000**	**1,700,000**	**NE**	**NE**	**15**
Residential DTSC CHHSL[3] :				**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**38**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**38**
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**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acena phthylene**	**Acenaphthene**	**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**
SWMU1-15	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	4.5
	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 (4.6)
	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 (4.6)
	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 (4.5)
	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 (4.5)
	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 (4.6)
	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 (4.6)
	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 (4.5)
	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 (4.7)
	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 (4.6)
	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 (4.6)
	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 (4.6)
	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 (4.6)
	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 (4.4)
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 (4.5)
	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 (4.5)
	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 (4.5)
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 (4.4)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
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 (4.5)
	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 (4.5)
	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 (4.6)
	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 (4.5)
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	4.6
	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 (4.5)
	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 (4.6)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)

TABLE C1-5

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level [1] :	22,000	310,000	1,700,000	3,400,000	17,000,000	380	38	380	1,700,000	380	3,800	110	2,300,000	2,300,000	380	3,600	1,700,000	1,700,000	10,000	1,160	38
			Residential Regional Screening Levels [2] :	22,000	310,000	1,700,000	3,400,000	17,000,000	380	15	380	1,700,000	380	3,800	110	2,300,000	2,300,000	380	3,600	1,700,000	1,700,000	NE	NE	15
			Residential DTSC CHHSL [3] :	NE	NE	NE	NE	NE	NE	38	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	38
			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	NE	NE	NE
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acena phthylene**	**Acenaphthene**	**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-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 (4.7)
	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 (4.5)
	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 (4.5)
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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
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 (4.7)
	10/07/08 [6]	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 (4.7)
	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 (4.5)
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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
SWMU1-WP-6h	10/06/08 [6]	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)
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	900	19
	10/06/08 [6]	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 (4.8)
	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 (4.5)
	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 (4.5)
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	13
	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 (4.6)
	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 (4.2)	ND (5.1)	ND (5.1)	ND	ND	ND (4.5)
	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 (4.5)

TABLE C1-5

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polycyclic Aromatic Hydrocarbons (µg/kg)																				
			Interim Screening Level[1] :	**22,000**	**310,000**	**1,700,000**	**3,400,000**	**17,000,000**	**380**	**38**	**380**	**1,700,000**	**380**	**3,800**	**110**	**2,300,000**	**2,300,000**	**380**	**3,600**	**1,700,000**	**1,700,000**	**10,000**	**1,160**	**38**
			Residential Regional Screening Levels[2] :	**22,000**	**310,000**	**1,700,000**	**3,400,000**	**17,000,000**	**380**	**15**	**380**	**1,700,000**	**380**	**3,800**	**110**	**2,300,000**	**2,300,000**	**380**	**3,600**	**1,700,000**	**1,700,000**	**NE**	**NE**	**15**
			Residential DTSC CHHSL[3] :	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**38**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**38**
			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**	**NE**	**NE**	**NE**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**1-Methyl naphthalene**	**2-Methyl naphthalene**	**Acena phthylene**	**Acenaphthene**	**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-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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.5)
	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 (4.6)
	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 (4.5)
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	160	22
	10/05/08[6]	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	60	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 (4.7)
	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	4.9
SWMU1-WP-T3a	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 (4.5)
	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 (4.5)
	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 (4.7)
	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 (4.7)
	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 (4.6)
	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 (5.1)	ND (5.1)	ND (5.1)	ND	ND	ND (4.5)
	10/05/08	9 - 10	FD	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND (5)	---	---	ND	---	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 (4.5)
	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 (4.6)

TABLE C1-5

Sample Results: Polycyclic Aromatic Hydrocarbons
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

[1] Interim screening level is DTSC residential CHHSL. If CHHSL is not available, the USEPA residential regional screening level is used. If an ecological comparison value has been calculated, then the lowest between the ecological comparison value or the CHHSL/regional screening level is used.

[2] USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

[3] California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). 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.

[6] white powder sample.

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
CHHSL	California human health screening levels
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

TABLE C1-6
Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
Interim Screening Level [1] :				540	540	1,800	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	NE
Residential DTSC CHHSL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
RWQCB Environmental Screening Levels [4] :				540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [6] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
MW-9	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	---	ND (0.4)	300	---
	06/30/97	20	N	---	---	---	---	---	16.8	---	---	9.64	---	---	---	---
	07/01/97	30	N	---	---	---	---	---	---	118	276	8.79	---	ND (0.4)	310	---
	06/30/97	40	N	---	---	---	---	---	11.5	---	---	8.57	---	---	---	---
	07/01/97	50	N	---	---	---	---	---	---	121	311	8.65	---	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	---	ND (0.4)	200	---
	07/01/97	87	FD	---	---	---	---	---	---	---	---	8.42	---	---	---	---
SWMU1-1	10/16/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.94	---	---	---	---
	10/16/08	2 - 3	N	ND (1)	ND (10)	10	---	---	---	---	---	9.4	---	---	---	---
	10/16/08	5 - 6	N	ND (1)	ND (10)	25.9	---	---	---	---	---	8.38	---	---	---	---
	10/16/08	9 - 10	N	ND (0.98)	ND (10)	ND (10)	---	---	---	---	---	9.36	---	---	---	---
SWMU1-2	10/15/08	0 - 0.5	N	---	12.4	13.1	---	---	---	---	---	8.68	---	---	---	---
	10/15/08	2 - 3	N	ND (0.98)	ND (10)	12.6	---	---	---	---	---	9.01	---	---	---	---
	10/15/08	5 - 6	N	ND (0.92)	ND (10)	15	---	---	---	---	---	9.04	---	---	---	---
	10/15/08	9 - 10	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	8.41	---	---	---	---

TABLE C1-6
Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
			Interim Screening Level [1] :	540	540	1,800	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	NE
			Residential DTSC CHHSL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			RWQCB Environmental Screening Levels [4] :	540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Background [6] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
SWMU1-3	10/06/08	0 - 0.5	N	---	ND (10)	30.4	---	---	---	---	---	8.37	---	---	---	---
	10/06/08	2 - 3	N	ND (0.96)	ND (10)	ND (10)	---	---	---	---	---	8.44	---	---	---	---
	10/06/08	2 - 3	FD	ND (1)	ND (10)	ND (10)	---	---	---	---	---	8.85	---	---	---	---
	10/06/08	5 - 6	N	ND (0.89)	ND (10)	49.7	---	---	---	---	---	8.36	---	---	---	---
	10/06/08	9 - 10	N	ND (1.1)	ND (10)	14.9	---	---	---	---	---	9.2	---	---	---	---
	10/06/08	19 - 20	N	ND (0.96)	ND (10)	ND (10)	---	---	---	---	---	9.45	---	---	---	---
	10/06/08	29 - 30	N	ND (0.98)	ND (10)	ND (10)	---	---	---	---	---	9.5	---	---	---	---
	10/06/08	39 - 40	N	ND (0.9)	ND (10)	ND (10)	---	---	---	---	---	9.36	---	---	---	---
	10/06/08	49 - 50	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.35	---	---	---	---
	10/06/08	59 - 60	N	ND (1)	ND (10)	12.9	---	---	---	---	---	9.3	---	---	---	---
	10/07/08	69 - 70	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.01	---	---	---	---
	10/07/08	79 - 80	N	ND (0.88)	ND (10)	ND (10)	---	---	---	---	---	8.04	---	---	---	---
	10/07/08	79 - 80	FD	ND (1.4)	ND (10)	ND (10)	---	---	---	---	---	8.58	---	---	---	---
SWMU1-4	10/15/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.99	---	---	---	---
	10/15/08	2 - 3	N	ND (1.1)	ND (10)	17.6	---	---	---	---	---	8.93	---	---	---	---
	10/15/08	5 - 6	N	ND (0.97)	ND (10)	11.5	---	---	---	---	---	9.08	---	---	---	---
	10/15/08	7 - 8	N	ND (0.99)	ND (10)	ND (10)	---	---	---	---	---	9.19	---	---	---	---
	10/15/08	9 - 10	N	ND (0.88)	ND (10)	ND (10)	---	---	---	---	---	9.25	---	---	---	---
	10/15/08	13 - 14	N	ND (0.97)	ND (10)	ND (10)	---	---	---	---	---	9.6	---	---	---	---
SWMU1-5	10/15/08	9 - 10	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.04	---	---	---	---
	10/15/08	13 - 14	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.75	---	---	---	---
	10/15/08	13 - 14	FD	ND (0.9)	ND (10)	ND (10)	---	---	---	---	---	9.51	---	---	---	---
	10/15/08	15 - 16	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.52	---	---	---	---
	10/15/08	19 - 20	N	ND (1.4)	ND (10)	ND (10)	---	---	---	---	---	9.59	---	---	---	---
SWMU1-6	10/15/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.93	---	---	---	---
	10/15/08	2 - 3	N	ND (0.87)	ND (10)	ND (10)	---	---	---	---	---	9.09	---	---	---	---
	10/15/08	5 - 6	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.26	---	---	---	---
	10/15/08	9 - 10	N	ND (0.87)	ND (10)	ND (10)	---	---	---	---	---	9.22	---	---	---	---

TABLE C1-6

Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
			Interim Screening Level [1] :	540	540	1,800	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	NE
			Residential DTSC CHHSL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			RWQCB Environmental Screening Levels [4] :	540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Background [6] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
SWMU1-7	10/15/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.6	---	---	---	---
	10/15/08	2 - 3	N	ND (0.89)	ND (10)	13	---	---	---	---	---	9	---	---	---	---
	10/15/08	5 - 6	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	8.78	---	---	---	---
	10/15/08	9 - 10	N	ND (0.92)	ND (10)	ND (10)	---	---	---	---	---	8.95	---	---	---	---
	10/15/08	9 - 10	FD	ND (0.96)	ND (10)	ND (10)	---	---	---	---	---	9.12	---	---	---	---
SWMU1-8	10/15/08	0 - 0.5	N	---	ND (10)	11.7	---	---	---	---	---	8.99	---	---	---	---
	10/15/08	2 - 3	N	ND (1.1)	ND (10)	14.5	---	---	---	---	---	8.87	---	---	---	---
	10/15/08	5 - 6	N	ND (1)	ND (10)	19.4	---	---	---	---	---	8.82	---	---	---	---
	10/15/08	9 - 10	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	10.2	---	---	---	---
SWMU1-9	10/14/08	0 - 0.5	N	---	ND (10)	41.2 J	---	---	---	---	---	8.75	---	---	---	---
	10/14/08	2 - 3	N	ND (1.2)	ND (10)	41.9 J	---	---	---	---	---	9.89	---	---	---	---
	10/14/08	5 - 6	N	ND (1)	ND (10)	20.4 J	---	---	---	---	---	9.72	---	---	---	---
	10/14/08	9 - 10	N	ND (0.92)	ND (10)	11.8 J	---	---	---	---	---	9.59	---	---	---	---
SWMU1-10	10/14/08	0 - 0.5	N	---	10.1	60.8	---	---	---	---	---	8.69	---	---	---	---
	10/14/08	2 - 3	N	ND (0.91) J	ND (10)	10.9	---	---	---	---	---	9.07	---	---	---	---
	10/14/08	5 - 6	N	ND (1.1)	ND (10)	11.9	---	---	---	---	---	10	---	---	---	---
	10/14/08	5 - 6	FD	ND (1.2)	ND (10)	16.1	---	---	---	---	---	9.85	---	---	---	---
	10/14/08	9 - 10	N	ND (1.2)	ND (10)	15.6	---	---	---	---	---	9.67	---	---	---	---
SWMU1-11	10/15/08	0 - 0.5	N	---	ND (10)	17.6	---	---	---	---	---	8.4	---	---	---	---
	10/15/08	2 - 3	N	ND (1.3)	ND (10)	15.7	---	---	---	---	---	8.69	---	---	---	---
	10/15/08	5 - 6	N	ND (0.99)	ND (10)	21.7	---	---	---	---	---	9.63	---	---	---	---
	10/15/08	9 - 10	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.66	---	---	---	---
SWMU1-12	10/14/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.04	---	---	---	---
	10/14/08	2 - 3	N	ND (1.1)	ND (10)	10.4	---	---	---	---	---	8.98	---	---	---	---
	10/14/08	5 - 6	N	ND (0.93)	ND (10)	ND (10)	---	---	---	---	---	9.53	---	---	---	---
	10/14/08	9 - 10	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.64	---	---	---	---

TABLE C1-6
Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
Interim Screening Level [1] :				540	540	1,800	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	NE
Residential DTSC CHHSL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
RWQCB Environmental Screening Levels [4] :				540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [6] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
SWMU1-13	10/14/08	0 - 0.5	N	---	12.6	67.3	---	---	---	---	---	8.72	---	---	---	---
	10/14/08	2 - 3	N	ND (1.5)	ND (10)	ND (10)	---	---	---	---	---	8.86	---	---	---	---
	10/14/08	2 - 3	FD	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	8.9	---	---	---	---
	10/14/08	5 - 6	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.82	---	---	---	---
	10/14/08	9 - 10	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.76	---	---	---	---
SWMU1-14	10/14/08	0 - 0.5	N	---	ND (10)	58.4	---	---	---	---	---	8.92	---	---	---	---
	10/14/08	2 - 3	N	ND (0.9)	ND (10)	11.6	---	---	---	---	---	9.07	---	---	---	---
	10/14/08	5 - 6	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.97	---	---	---	---
	10/14/08	9 - 10	N	ND (1.3)	ND (10)	10.7	---	---	---	---	---	9.52	---	---	---	---
SWMU1-15	09/22/08	0 - 0.5	N	---	ND (10)	23.7	---	---	---	---	---	8.99	---	---	---	---
	09/22/08	2 - 3	N	ND (0.9)	ND (10)	ND (10)	---	---	---	---	---	9.95	---	---	---	---
	09/22/08	5 - 6	N	ND (1.1)	ND (10)	22.5	---	---	---	---	---	9.84	---	---	---	---
	09/22/08	9 - 10	N	ND (1.2) J	ND (10)	10.3	---	---	---	---	---	9.98	---	---	---	---
	09/22/08	9 - 10	FD	ND (1.1)	ND (10)	19.8	---	---	---	---	---	9.95	---	---	---	---
	09/22/08	19 - 20	N	ND (0.89)	ND (10)	ND (10)	---	---	---	---	---	9.82	---	---	---	---
	09/22/08	29 - 30	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.51	---	---	---	---
	09/22/08	39 - 40	N	ND (0.95)	ND (10)	11.6	---	---	---	---	---	9.39	---	---	---	---
	09/22/08	49 - 50	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.19	---	---	---	---
	09/22/08	59 - 60	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.22	---	---	---	---
	09/22/08	59 - 60	FD	ND (1.4)	ND (10)	ND (10)	---	---	---	---	---	9.07	---	---	---	---
	09/22/08	69 - 70	N	ND (1.3)	ND (10)	11.2	---	---	---	---	---	8.82	---	---	---	---
	09/22/08	79 - 80	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	8.7	---	---	---	---
	09/23/08	89 - 90	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.57	---	---	---	---
SWMU1-16	09/21/08	0 - 0.5	N	---	ND (10)	19.2 J	---	---	---	---	---	8.87	---	---	---	---
	09/21/08	2 - 3	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.23	---	---	---	---
	09/21/08	5 - 6	N	ND (0.98)	14.5 J	33.8 J	---	---	---	---	---	9.14	---	---	---	---

TABLE C1-6
Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
Interim Screening Level [1] :				540	540	1,800	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	NE
Residential DTSC CHHSL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
RWQCB Environmental Screening Levels [4] :				540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [6] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
SWMU1-17	09/21/08	0 - 0.5	N	---	ND (10)	150 J	---	---	---	---	---	8.88	---	---	---	---
	09/21/08	2 - 3	N	ND (1.2) J	ND (10)	ND (10)	---	---	---	---	---	9.15	---	---	---	---
	09/21/08	5 - 6	N	ND (1)	ND (10)	27.2 J	---	---	---	---	---	9.71	---	---	---	---
	09/21/08	9 - 10	N	---	ND (10)	ND (10)	---	---	---	---	---	9.78	---	---	---	---
	09/21/08	9 - 10	FD	ND (1.5)	ND (10)	ND (10)	---	---	---	---	---	9.64	---	---	---	---
SWMU1-WP-1h	10/07/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.96	---	---	---	---
	10/07/08	2 - 3	N	ND (0.79)	ND (10)	ND (10)	---	---	---	---	---	9.37	---	---	---	---
	10/07/08	5 - 6	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.28	---	---	---	---
	10/07/08	9 - 10	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.22	---	---	---	---
SWMU1-WP-3a	10/14/08	0 - 0.5	N	---	17.8	86 J	---	---	---	---	---	8.68	---	---	---	---
	10/14/08	2 - 3	N	ND (0.95)	ND (10)	14.9 J	---	---	---	---	---	9.8	---	---	---	---
	10/14/08	5 - 6	N	ND (0.96)	ND (10) J	18.5 J	---	---	---	---	---	10	---	---	---	---
	10/14/08	7 - 8	N	ND (1.2)	ND (10)	11.6 J	---	---	---	---	---	9.59	---	---	---	---
	10/14/08	9 - 10	N	ND (1.2)	ND (10)	13.3 J	---	---	---	---	---	9.65	---	---	---	---
	10/14/08	9 - 10	FD	ND (1.1)	ND (10)	12.5 J	---	---	---	---	---	9.55	---	---	---	---
	10/14/08	11 - 12	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.64	---	---	---	---
	10/14/08	13 - 14	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.6	---	---	---	---
SWMU1-WP-3h	10/07/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.17	---	---	---	---
	10/07/08	2 - 3	N	ND (1.5)	ND (10)	ND (10)	---	---	---	---	---	9.44	---	---	---	---
	10/07/08	5 - 6	N	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.53	---	---	---	---
SWMU1-WP-5a	10/05/08	0 - 0.5	N	---	16.2	168	---	---	---	---	---	9.2	---	---	---	---
	10/05/08	2 - 3	N	ND (1.1)	ND (10)	16.2	---	---	---	---	---	9.32	---	---	---	---
	10/05/08	5 - 6	N	ND (1.2)	ND (10)	38.7	---	---	---	---	---	9.92	---	---	---	---
	10/05/08	5 - 6	FD	ND (0.98)	ND (10)	47.4	---	---	---	---	---	10.2	---	---	---	---
	10/05/08	7 - 8	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.64	---	---	---	---
	10/05/08	9 - 10	N	ND (52)	ND (10)	ND (10)	---	---	---	---	---	9.47	---	---	---	---
	10/05/08	11 - 12	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.67	---	---	---	---
	10/05/08	13 - 14	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.71	---	---	---	---

TABLE C1-6

Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
Interim Screening Level [1] :				540	540	1,800	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	NE
Residential DTSC CHHSL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
RWQCB Environmental Screening Levels [4] :				540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [6] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
SWMU1-WP-5h	10/07/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.46	---	---	---	---
	10/07/08 [7]	2 - 3	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.71	---	---	---	---
	10/07/08	5	N	ND (1.5)	ND (10)	ND (10)	---	---	---	---	---	9.55	---	---	---	---
SWMU1-WP-6a	10/05/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.1	---	---	---	---
	10/05/08	2 - 3	N	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	9.28	---	---	---	---
	10/05/08	2 - 3	FD	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.16	---	---	---	---
	10/05/08	5 - 6	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.52	---	---	---	---
	10/05/08	7 - 8	N	ND (0.91)	ND (10)	ND (10)	---	---	---	---	---	9.86	---	---	---	---
	10/05/08	9 - 10	N	ND (0.87)	ND (10)	ND (10)	---	---	---	---	---	9.57	---	---	---	---
	10/05/08	11 - 12	N	ND (0.94)	ND (10)	ND (10)	---	---	---	---	---	9.54	---	---	---	---
	10/05/08	13 - 14	N	ND (0.96)	ND (10)	ND (10)	---	---	---	---	---	9.54	---	---	---	---
SWMU1-WP-6h	10/06/08 [7]	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.03	---	---	---	---
	10/06/08	2 - 3	N	ND (0.8)	ND (10)	ND (10)	---	---	---	---	---	9.09	---	---	---	---
	10/06/08	5 - 6	N	ND (0.86)	ND (10)	ND (10)	---	---	---	---	---	9.55	---	---	---	---
	10/06/08	5 - 6	FD	ND (1)	ND (10)	ND (10)	---	---	---	---	---	9.66	---	---	---	---
	10/06/08	9 - 10	N	ND (0.91)	ND (10)	ND (10)	---	---	---	---	---	9.63	---	---	---	---
SWMU1-WP-7	10/06/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.36	---	---	---	---
	10/06/08 [7]	2 - 3	N	ND (1.8)	ND (10)	ND (10)	---	---	---	---	---	9.39	---	---	---	---
	10/06/08	5 - 6	N	ND (0.99)	ND (10)	ND (10)	---	---	---	---	---	9.42	---	---	---	---
	10/06/08	9 - 10	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.87	---	---	---	---
SWMU1-WP-8	10/06/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	8.98	---	---	---	---
	10/06/08	2 - 3	N	ND (0.82)	ND (10)	ND (10)	---	---	---	---	---	9.5	---	---	---	---
	10/06/08	5 - 6	N	ND (0.93)	ND (10)	ND (10)	---	---	---	---	---	9.1	---	---	---	---
	10/06/08	9 - 10	N	ND (1.5)	ND (10)	ND (10)	---	---	---	---	---	8.96	---	---	---	---

TABLE C1-6

Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
Interim Screening Level [1] :				540	540	1,800	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	NE
Residential DTSC CHHSL [3] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
RWQCB Environmental Screening Levels [4] :				540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Ecological Comparison Values [5] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Background [6] :				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
SWMU1-WP-9	09/21/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.02	---	---	---	---
	09/21/08	2 - 3	N	ND (0.98)	ND (10)	ND (10)	---	---	---	---	---	9.58	---	---	---	---
	09/21/08	2 - 3	FD	ND (1.1)	ND (10)	ND (10)	---	---	---	---	---	8.84	---	---	---	---
	09/21/08	5 - 6	N	ND (1.2)	ND (10)	17.4 J	---	---	---	---	---	9.63	---	---	---	---
	09/21/08	7 - 8	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.57	---	---	---	---
	09/21/08	9 - 10	N	ND (0.94)	ND (10)	ND (10)	---	---	---	---	---	9.72	---	---	---	---
	09/21/08	11 - 12	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	9.77	---	---	---	---
	09/21/08	13 - 14	N	ND (1.4)	ND (10)	ND (10)	---	---	---	---	---	9.67	---	---	---	---
SWMU1-WP-10	10/05/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.1	---	---	---	---
	10/05/08 [7]	2 - 3	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.21	---	---	---	---
	10/05/08	5 - 6	N	ND (1.2) J	ND (10)	ND (10)	---	---	---	---	---	10.2	---	---	---	---
	10/05/08	9 - 10	N	ND (0.93)	ND (10)	ND (10)	---	---	---	---	---	9.81	---	---	---	---
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	---	ND (10)	ND (10)	---	---	---	---	---	9.16	---	---	---	---
	10/05/08	2 - 3	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.19	---	---	---	---
	10/05/08	5 - 6	N	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	10	---	---	---	---
	10/05/08	5 - 6	FD	ND (1.2)	ND (10)	ND (10)	---	---	---	---	---	10	---	---	---	---
	10/05/08	7 - 8	N	ND (1.3)	ND (10)	ND (10)	---	---	---	---	---	9.75	---	---	---	---
	10/05/08	9 - 10	N	ND (1.4)	ND (10)	ND (10)	---	---	---	---	---	9.79	---	---	---	---
	10/05/08	9 - 10	FD	ND (1.1)	---	---	---	---	---	---	---	---	---	---	---	---
	10/05/08	11 - 12	N	ND (0.95)	ND (10)	ND (10)	---	---	---	---	---	9.67	---	---	---	---
	10/05/08	13 - 14	N	ND (0.98)	ND (10)	ND (10)	---	---	---	---	---	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	---	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	---	ND (0.4)	250	---

TABLE C1-6

Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Total Petroleum Hydrocarbons (mg/kg)			General Chemistry									
							mg/kg	mg/kg	meq/100g	mV	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
			Interim Screening Level [1] :	540	540	1,800	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	NE
			Residential DTSC CHHSL [3] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			RWQCB Environmental Screening Levels [4] :	540	540	1,800	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Ecological Comparison Values [5] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
			Background [6] :	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Location	Date	Depth (ft bgs)	Sample Type	TPH as gasoline	TPH as diesel	TPH as motor oil	Alkalinity, as carbonate	Alkalinity, bicarb as CaCO3	Cation Exchange Capacity	Electric Conductance	Orthophosphate	pH	Phosphate	Sulfide	Total organic carbon	Chloride
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	---	ND (0.4)	110	---
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	---	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-BANK 1	11/23/98	0	N	---	---	---	22	456	---	---	---	8.25	161	---	---	46
WP-BANK 2	11/23/98	0	N	---	---	---	68	271	---	---	---	8.93	358	---	---	227
T-3-B	11/13/98	0	N	---	---	---	---	---	---	---	---	8.67	---	---	---	---
P-2Soil	11/13/98	3.5	N	---	---	---	200	639	---	---	---	9.01	8.8	---	---	34

TABLE C1-6

Sample Results: Total Petroleum Hydrocarbons and General Chemistry Parameters
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

[1] Interim screening level is the Regional Water Quality Control Board environmental screening level.

[2] USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

[3] California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). January.

[4] Water Board. 2008. "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater" (Table K-1). May 27.

[5] ARCADIS. 2008. "Technical Memorandum 3: Ecological Comparison Values for Metals and Polycyclic Aromatic Hydrocarbons in Soil." May 28.

[6] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

[7] White powder sample.

Results greater than the interim screening level are circled.

TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
DTSC	California Department of Toxic Substances Control
CHHSL	California human health screening levels
Water Board	Regional Water Quality Control Board
NE	not established
mg/kg	milligrams per kilogram
meq/100g	milli equivalents per 100 grams
mV	milli volts
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

TABLE C1-7

Sample Results: Pesticides
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Pesticides (µg/kg)																				
Interim Screening Level[1] :				2.1	2.1	2.1	33	77	430	270	77	5	370,000	370,000	370,000	21,000	21,000	21,000	500	430	130	53	340,000	460
Residential Regional Screening Levels[2] :				2,000	1,400	1,700	29	77	1,600	270	77	30	370,000	370,000	370,000	18,000	18,000	18,000	520	1,600	110	53	310,000	440
Residential DTSC CHHSL[3] :				2,300	1,600	1,600	33	NE	430	NE	NE	35	NE	NE	NE	21,000	21,000	21,000	500	430	130	NE	340,000	460
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
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
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)
SWMU1-WP-6h[6]	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)
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)
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)
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)

1 Interim screening level is DTSC residential CHHSL. If CHHSL is not available, the USEPA residential regional screening level is used. If an ecological comparison value has been calculated, then the lowest between the ecological comparison value or the CHHSL/regional screening level is used.

2 USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

3 California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). 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 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

6 white powder sample.

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
CHHSL	California human health screening levels
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

TABLE C1-8

Sample Results: Polychlorinated Biphenyls
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Polychlorinated biphenyls (µg/kg)									
			Interim Screening Level[1] :	3,900	140	140	220	220	220	220	220	220	204
			Residential Regional Screening Levels[2] :	3,900	140	140	220	220	220	220	220	220	NE
			Residential DTSC CHHSL[3] :	89	89	89	89	89	89	89	89	89	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**
SWMU1-1	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-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)
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[6]	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[6]	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[6]	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)

[1] Interim screening level is the USEPA residential regional screening level.

[2] USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

[3] California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). 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.

[6] white powder sample.

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
CHHSL	California human health screening levels
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

TABLE C1-9

Constitiuent Concentrations in Soil Compared to Screening Values
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Frequency of detection	Maximum Detected Value	Background Threshold Value (BTV) [1] # of Exceedences [7]	(BTV)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (Res SL) [3] # of Exceedences [8]	(Res SL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (Com SL) [5] # of Exceedences [8]	(Com SL)	Interim Screening Level (Int SL) [6] # of Exceedences [8]	(Int SL)
Metals															
Antimony	mg/kg	0 / 141 (0%)	ND (4) ‡	NA	(NE)	0	(0.285)	0	(30)	NA	(NE)	0	(380)	0	(0.285)
Arsenic	mg/kg	134 / 141 (95%)	12	2	(11)	2	(11.4)	2	(0.07) *	NA	(NE)	2	(0.24) *	2	(11)
Barium	mg/kg	149 / 149 (100%)	1,900	2	(410)	2	(330) *	0	(5,200)	NA	(NE)	0	(63,000)	2	(410)
Beryllium	mg/kg	0 / 141 (0%)	ND (5.3) ‡	0	(0.672)	0	(23.3)	0	(16)	NA	(NE)	0	(190)	0	(0.672)
Cadmium	mg/kg	0 / 141 (0%)	ND (2) ‡	0	(1.1)	0	(0.0151) *	0	(39)	NA	(NE)	0	(500)	0	(1.1)
Chromium	mg/kg	185 / 185 (100%)	3,200	73	(39.8)	73	(36.3) *	26	(280)	NA	(NE)	7	(1,400)	73	(39.8)
Chromium, Hexavalent	mg/kg	48 / 185 (26%)	47.5	34	(0.83)	0	(139.6)	4	(17)	NA	(NE)	1	(37)	34	(0.83)
Cobalt	mg/kg	141 / 141 (100%)	19	20	(12.7)	14	(13)	0	(23)	NA	(NE)	0	(300)	20	(12.7)
Copper	mg/kg	184 / 185 (99%)	61	41	(16.8)	25	(20.6)	0	(3,000)	NA	(NE)	0	(38,000)	41	(16.8)
Lead	mg/kg	148 / 149 (99%)	13	2	(8.39)	2	(0.0166) *	0	(80)	NA	(NE)	0	(320)	2	(8.39)
Mercury	mg/kg	0 / 141 (0%)	ND (0.12) ‡	NA	(NE)	0	(0.0125)	0	(18)	NA	(NE)	0	(180)	0	(0.0125)
Molybdenum	mg/kg	31 / 149 (21%)	7.8	22	(1.37)	11	(2.25)	0	(380)	NA	(NE)	0	(4,800)	22	(1.37)
Nickel	mg/kg	185 / 185 (100%)	51	20	(27.3)	20	(0.607) *	0	(1,600)	NA	(NE)	0	(16,000)	20	(27.3)
Selenium	mg/kg	4 / 141 (2.8%)	2.5	2	(1.47)	2	(0.177) *	0	(380)	NA	(NE)	0	(4,800)	2	(1.47)
Silver	mg/kg	0 / 141 (0%)	ND (5.3) ‡	NA	(NE)	0	(5.15)	0	(380)	NA	(NE)	0	(4,800)	0	(5.15)
Thallium	mg/kg	0 / 141 (0%)	ND (11) ‡	NA	(NE)	0	(2.32)	0	(5)	NA	(NE)	0	(63)	0	(2.32)
Vanadium	mg/kg	149 / 149 (100%)	57	9	(52.2)	9	(13.9) *	0	(390)	NA	(NE)	0	(5,200)	9	(52.2)
Zinc	mg/kg	185 / 185 (100%)	673	37	(58)	37	(0.164) *	0	(23,000)	NA	(NE)	0	(100,000)	37	(58)
Contract Laboratory Program Inorganics															
Aluminum	mg/kg	16 / 16 (100%)	12,000	0	(16,400)	NA	(NE)	0	(77,000)	NA	(NE)	0	(990,000)	0	(16,400)
Calcium	mg/kg	19 / 19 (100%)	280,000	4	(66,500)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	4	(66,500)
Iron	mg/kg	27 / 27 (100%)	25,000	NA	(NE)	NA	(NE)	0	(55,000)	NA	(NE)	0	(720,000)	0	(55,000)
Magnesium	mg/kg	19 / 19 (100%)	14,700	2	(12,100)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	2	(12,100)
Manganese	mg/kg	27 / 27 (100%)	526	1	(402)	1	(220)	0	(1,800)	NA	(NE)	0	(23,000)	1	(402)
Potassium	mg/kg	19 / 19 (100%)	4,900	1	(4,400)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	1	(4,400)
Sodium	mg/kg	13 / 19 (68%)	1,800	0	(2,070)	NA	(NE)	NA	(NE)	NA	(NE)	NA	(NE)	0	(2,070)
Cyanide	mg/kg	0 / 16 (0%)	ND (1.1) ‡	NA	(NE)	0	(0.9)	0	(1,600)	NA	(NE)	0	(20,000)	0	(0.9)
Polycyclic Aromatic Hydrocarbons															
Benzo (a) anthracene	µg/kg	7 / 141 (5.0%)	19	NA	(NE)	NA	(NE)	0	(380)	NA	(NE)	0	(1,300)	0	(380)
Benzo (a) pyrene	µg/kg	6 / 141 (4.3%)	15	NA	(NE)	NA	(NE)	0	(38)	NA	(NE)	0	(130)	0	(38)
Benzo (b) fluoranthene	µg/kg	7 / 141 (5.0%)	22	NA	(NE)	NA	(NE)	0	(380)	NA	(NE)	0	(1,300)	0	(380)
Benzo (ghi) perylene	µg/kg	5 / 141 (3.5%)	11	NA	(NE)	NA	(NE)	0	(1,700,000)	NA	(NE)	0	(17,000,000)	0	(1,700,000)
Benzo (k) fluoranthene	µg/kg	8 / 141 (5.7%)	20	NA	(NE)	NA	(NE)	0	(380)	NA	(NE)	0	(1,300)	0	(380)
Chrysene	µg/kg	8 / 141 (5.7%)	25	NA	(NE)	NA	(NE)	0	(3,800)	NA	(NE)	0	(13,000)	0	(3,800)
Fluoranthene	µg/kg	11 / 141 (7.8%)	440	NA	(NE)	NA	(NE)	0	(2,300,000)	NA	(NE)	0	(22,000,000)	0	(2,300,000)
Indeno (1,2,3-cd) pyrene	µg/kg	5 / 141 (3.5%)	10	NA	(NE)	NA	(NE)	0	(380)	NA	(NE)	0	(1,300)	0	(380)
Naphthalene	µg/kg	2 / 141 (1.4%)	16	NA	(NE)	NA	(NE)	0	(3,600)	NA	(NE)	0	(18,000)	0	(3,600)
Phenanthrene	µg/kg	6 / 141 (4.3%)	47	NA	(NE)	NA	(NE)	0	(1,700,000)	NA	(NE)	0	(17,000,000)	0	(1,700,000)
Pyrene	µg/kg	10 / 141 (7.1%)	360	NA	(NE)	NA	(NE)	0	(1,700,000)	NA	(NE)	0	(17,000,000)	0	(1,700,000)
PAH Low molecular weight	µg/kg	7 / 141 (5.0%)	57	NA	(NE)	0	(10,000)	NA	(NE)	NA	(NE)	NA	(NE)	0	(10,000)
PAH High molecular weight	µg/kg	11 / 141 (7.8%)	900	NA	(NE)	0	(1,160)	NA	(NE)	NA	(NE)	NA	(NE)	0	(1,160)
B(a)P Equivalent	µg/kg	11 / 141 (7.8%)	22	NA	(NE)	NA	(NE)	0	(38)	NA	(NE)	0	(130)	0	(38)

TABLE C1-9

Constitiuent Concentrations in Soil Compared to Screening Values
SWMU 1 - Former Percolation Bed (Former Holding Pond)
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Units	Frequency of detection	Maximum Detected Value	Background Threshold Value (BTV) [1] # of Exceedences [7]	(BTV)	Ecological Comparison Value (ECV) [2] # of Exceedences [8]	(ECV)	Residential Screening Level (Res SL) [3] # of Exceedences [8]	(Res SL)	RWQCB Environmental Screening Levels (ESL) [4] # of Exceedences [8]	(ESL)	Commercial Screening Level (Com SL) [5] # of Exceedences [8]	(Com SL)	Interim Screening Level (Int SL) [6] # of Exceedences [8]	(Int SL)
Polychlorinated biphenyls															
Aroclor 1254	µg/kg	9 / 21 (43%)	200	NA	(NE)	NA	(NE)	0	(220)	NA	(NE)	0	(740)	0	(220)
Total PCBs	µg/kg	9 / 21 (43%)	200	NA	(NE)	0	(204)	NA	(NE)	NA	(NE)	NA	(NE)	0	(204)
Total Petroleum Hydrocarbons															
TPH as diesel	mg/kg	6 / 141 (4.3%)	17.8	NA	(NE)	NA	(NE)	NA	(NE)	0	(540)	NA	(NE)	0	(540)
TPH as motor oil	mg/kg	49 / 141 (35%)	168	NA	(NE)	NA	(NE)	NA	(NE)	0	(1,800)	NA	(NE)	0	(1,800)

Notes:

1 CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

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 - residential DTSC CHHSL. If the residential DTSC CHHSL is not established, the USEPA regional screening level is used. (PCBs are an exception to this rule since their final screening levels are equal to the EPA regional screening levels).

4 Water Board. 2008. "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater" (Table K-1). May 27.

5 Commercial screening level - commercial DTSC CHHSL. If the commercial DTSC CHHSL is not established, the USEPA regional screening level is used. (PCBs are an exception to this rule since their final screening levels are equal to the EPA regional screening levels).

6 Interim screening level is equal to the appropriate background value, if a background value is not available then the lesser of the soil ecological comparison values and DTSC CHHSL is used, if the DTSC CHHSL is not available, the USEPA regional screening level is used.

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

* 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 interim screening level

USEPA regional screening level - USEPA. 2009. "Regional Screening Levels for Chemical Contaminants at Superfund Sites." http://epaprgs.ornl.govchemicals/index.shtml. December.

CHHSL - California EPA, Office of Environmental Health Hazard Assessment. 2005. "Human Exposure Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil." November 2004 (January 2005 Revision). January.

mg/kg miligrams per kilogram
µg/kg micrograms per kilogram
ng/kg nanograms per kilogram
NA not applicable
ND not detected in any of the samples
NE not established
SL screening level

USEPA United States Environmental Protection Agency
DTSC California Department of Toxic Substances Control
CHHSL California human health screening levels
Water Board Regional Water Quality Control Board

TABLE C1-10
Central Tendency Comparisons (Site to Background)
SWMU 1 - Former Percolation Bed
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

Parameter	Comparison Test Used	Probability that the Observed Differences Would Occur Purely by Chance	Statistical Decision with 0.05 Significance Level	Mean of Site Detects	Mean of Bkgd Detects	Median of Site Detects	Median of Bkgd Detects	Number of Site Detects	Number of Site Samples	Number of Bkgd Detects	Number of Bkgd Samples	Percent Detects Site	Percent Detects Bkgd
Arsenic	Gehan	0.072	nsd	4.43	4.01	4.2	3.5	134	141	58	59	95	98
Barium	Gehan	1.000	nsd	112	165	94	135	149	149	60	60	100	100
Calcium	Gehan	0.470	nsd	55200	24300	19000	20000	19	19	55	55	100	100
Chromium	Gehan	0.000	Site > Bkgd	187	22.3	29	21.9	185	185	70	70	100	100
Cobalt	Gehan	0.000	Site > Bkgd	9.65	7.85	9	7.61	141	141	58	59	100	98
Copper	Gehan	0.001	Site > Bkgd	13.6	10.5	11.6	10.1	184	185	70	70	99	100
Lead	Gehan	0.995	nsd	3.51	4.38	3.2	3.5	148	149	59	60	99	98
Magnesium	Gehan	0.522	nsd	8450	7950	7300	8100	19	19	55	55	100	100
Manganese	Gehan	1.000	nsd	224	298	230	281	27	27	59	59	100	100
Molybdenum	Gehan	0.640	nsd	2.49	1.03	1.9	1	31	149	11	60	21	18
Nickel	Gehan	0.792	nsd	16.1	15.4	14	15	185	185	70	70	100	100
Potassium	Gehan	0.954	nsd	2510	2860	2500	2800	19	19	55	55	100	100
Vanadium	Gehan	0.121	nsd	36.1	34	35	34.1	149	149	60	60	100	100
Zinc	Gehan	0.001	Site > Bkgd	54.9	36.8	40	35.5	185	185	70	70	100	100

Bkgd = background

nsd = no statistical difference

> = greater than
< = less thank

TABLE C1-11
Results of Tiered Analysis at SMWU1/AOC 1-South
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

Metal	Step 1 Do COPCs/COPECs Exceed Background?	Step 2 Do COPCs/COPECs Exceed SSL?	Step 3 Does Screening Model Eliminate Potential for Leaching to Groundwater?
Arsenic	√		
Barium	√		
Chromium	√		
Chromium, Hexavalent	√	√	Yes
Cobalt[a]	√		
Copper	√		
Lead	√		
Molybdenum	√	√	Yes
Nickel	√		
Selenium	√		
Vanadium	√		
Zinc	√		

[a] Cobalt has no maximum contaminant limit. The United States Environmental protection Agency tap water regional screening level (11 micrograms per liter) was used in place of the maximum contaminant limit.

✓ = Constituents concentration exceeds background and/or soil screening level (SSL).

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
		Soil Screening Levels : [1]		39	2,600	3,400	0.22	40	13,000	2,100	0.73	2,300	25	66	77,000
		Background : [2]		11	410	39.8	0.83	12.7	16.8	8.39	1.37	27.3	1.47	52.2	58
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
MW-9	06/30/97	1	N	---	---	15	ND (0.05)	---	7.2	---	---	7.6	---	---	19.7
	06/30/97	3.5	N	---	---	4.1	0.06	---	3.1	---	---	3.6	---	---	11.8
	06/30/97	3.5	FD	---	---	7.6	0.21	---	3.5	---	---	3.7	---	---	12.6
	06/30/97	6	N	---	---	11.8	ND (0.05)	---	6.4	---	---	7.7	---	---	21
	07/01/97	10	N	---	91	42.2	ND (0.05)	---	6.8	2.7	ND (0.2)	9.7	---	21.8	29
	06/30/97	20	N	---	---	9	ND (0.05)	---	7.1	---	---	9.1	---	---	21.7
	07/01/97	30	N	---	28.8	16.3	ND (0.05)	---	12.4	3.9	ND (0.2)	15.3	---	31	29.4
	06/30/97	40	N	---	---	9.7	ND (0.05)	---	7.5	---	---	9	---	---	22.5
	07/01/97	50	N	---	83.8	11.7	ND (0.05)	---	14.7	3.2	ND (0.2)	11.3	---	20.3	23.3
	06/30/97	60	N	---	---	28.8	ND (0.05)	---	17.4	---	---	20.2	---	---	34.4
	06/30/97	70	N	---	---	8.9	ND (0.05)	---	10	---	---	10.2	---	---	19
	07/01/97	87	N	---	94	9.8	ND (0.05)	---	10.2	8.4	ND (0.2)	11.6	---	33	126
	07/01/97	87	FD	---	---	11.9	0.06	---	11.4	---	---	11.7	---	---	121
MW-10	06/27/97	1	N	---	---	14.2	ND (0.05)	---	14.1	---	---	8.8	---	---	20.9
	06/27/97	3	N	---	---	13.4	ND (0.05)	---	8.3	---	---	9	---	---	26.6
	06/27/97	6	N	---	---	19	ND (0.05)	---	8.4	---	---	10.7	---	---	23.3
	06/27/97	10	N	---	95.3	26.7	ND (0.05)	---	9.6	2.8	0.62	14.1	---	26.9	30.4
	06/27/97	20	N	---	---	14.7	ND (0.05)	---	7.7	---	---	10.2	---	---	27.1
	06/27/97	25	N	---	---	16.1	ND (0.05)	---	10.6	---	---	13.4	---	---	34.1
	06/27/97	30	N	---	---	13.8	ND (0.05)	---	9.4	---	---	11.5	---	---	31.5
	06/27/97	35	N	---	87	---	---	---	---	3.6	ND (0.2)	---	---	29.9	---
	06/27/97	40	N	---	---	14.5	ND (0.05)	---	9.2	---	---	12.6	---	---	29.4
	06/28/97	50	N	---	---	14.3	ND (0.05)	---	8.5	---	---	12.2	---	---	31.2
	06/27/97	60	N	---	---	9.1	ND (0.05)	---	6	---	---	6.6	---	---	16.3
	06/27/97	70	N	---	110	11.7	ND (0.05)	---	8.8	2.2	ND (0.2)	9.4	---	20.1	24.2
	06/27/97	75	N	---	---	11.5	ND (0.05)	---	6.4	---	---	8.2	---	---	24.9
	06/27/97	75	FD	---	---	9.6	0.1	---	6.97	---	---	8.1	---	---	21.6
	06/27/97	82	N	---	115	9.9	ND (0.05)	---	6.3	2.3	ND (0.2)	8.7	---	21.5	26.6

TABLE C1-12
Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	39	2,600	3,400	0.22	40	13,000	2,100	0.73	2,300	25	66	77,000
			Background : [2]	11	410	39.8	0.83	12.7	16.8	8.39	1.37	27.3	1.47	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Arsenic	Barium	Chromium	Chromium Hexavalent	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Vanadium	Zinc
SWMU1-1	10/16/08	0 - 0.5	N	3.5	120	44	0.524	11	12	4.2	ND (1.2)	16	ND (1.2)	38	41
	10/16/08	2 - 3	N	3	110	67	0.462	7.5	9.4	3	ND (1)	15	ND (1)	32	37
	10/16/08	5 - 6	N	ND (1)	94	3,200	14.1	7.3	9.5	4.5	7.8	12	ND (1)	45	76
	10/16/08	9 - 10	N	2.2	83	55	0.907	6.9	8.6	1.7	ND (1)	11	ND (1)	27	89
SWMU1-2	10/15/08	0 - 0.5	N	4.7	110	26	ND (0.401)	7.3	22	6.5	ND (1)	14	ND (1)	35	37
	10/15/08	2 - 3	N	2.6	110	36	ND (0.404)	9.3	10	3.7	ND (1)	15	ND (1)	33	38
	10/15/08	5 - 6	N	3.2	120	44	ND (0.404)	8.9	12	6.1	3	16	ND (1)	33	38
	10/15/08	9 - 10	N	ND (1)	130	2,000	22.8	10	15	4	2.8	16	ND (1)	41	100
SWMU1-3	10/06/08	0 - 0.5	N	2.7	94	28	ND (0.405)	9.9	11	3.9	ND (1)	15	ND (1)	37	33
	10/06/08	2 - 3	N	2.5	130	41	ND (0.413)	9.2	9.4	2.3	1.5	16	ND (1)	35	38
	10/06/08	2 - 3	FD	2.8	120	38	ND (0.41)	8.6	9	2.9	1.4	14	ND (1)	34	37
	10/06/08	5 - 6	N	ND (1)	140	1,300	22.7	8.9	11	3.8	4.2	12	ND (1)	37	78
	10/06/08	9 - 10	N	3	60	96	1.55 J	9.4	11	2.7	ND (1)	18	ND (1)	32	140
	10/06/08	19 - 20	N	5.6	250	20	ND (0.416)	9.1	10	2.9	ND (2.1)	13	ND (1)	34	39
	10/06/08	29 - 30	N	10	59	21	ND (0.424)	8.8	15	2.4	ND (5.3)	16	ND (1.1)	32	38
	10/06/08	39 - 40	N	5.3	45	22	ND (0.424)	8.6	8.5	2.7	ND (2.1)	14	ND (1)	31	35
	10/06/08	49 - 50	N	5.6	63	25	ND (0.405)	9.8	12	3.2	ND (2.1)	17	ND (1.1)	35	39
	10/06/08	59 - 60	N	5.3	99	38	ND (0.418)	9.6	14	3	2.1	20	ND (1)	37	36
	10/07/08	69 - 70	N	5.2	64	29	ND (0.42)	9.9	14	2.6	ND (2.1)	19	ND (1)	38	38
	10/07/08	79 - 80	N	6.6	350	20	ND (0.427)	8.3	13	3.1	ND (2.2)	14	ND (1.1)	35	39
	10/07/08	79 - 80	FD	5.1	340	21	ND (0.441)	7.3	15	2.6	1.3	14	ND (1.1)	31	34
SWMU1-4	10/15/08	0 - 0.5	N	2.9	75	17	ND (0.401)	5.6	6.8	2.6	ND (1)	9.5	ND (1)	34	26
	10/15/08	2 - 3	N	ND (1)	130	870	4.95	7.3	11	3.6	1.7	13	ND (1)	36	72
	10/15/08	5 - 6	N	1.8	100	100	1.39	7.6	10	1.8	ND (1)	10	ND (1)	36	170
	10/15/08	7 - 8	N	2.1	89	40	ND (0.415)	7.5	7.6	1.6	ND (1)	9.8	ND (1)	31	120
	10/15/08	9 - 10	N	2.1	95	23	ND (0.414)	7.5	7.9	1.7	ND (1)	10	ND (1)	33	110
	10/15/08	13 - 14	N	2.4	110	18	ND (0.413)	7.4	7.1	1.7	ND (1)	11	ND (1)	31	67
SWMU1-5	10/15/08	9 - 10	N	2.6	71	47	0.874	7	8.3	2.1	ND (1)	9.9	ND (1)	28	100

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
			Background : [2]	**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
SWMU1-5	10/15/08	13 - 14	N	5.4	58	21	ND (0.42)	8.3	7.9	2.8	ND (2.1)	13	ND (1)	30	42
	10/15/08	13 - 14	FD	5.8	48	21	ND (0.423)	8	8	2.9	ND (2.1)	13	ND (1)	31	44
	10/15/08	15 - 16	N	5.4	63	21	ND (0.414)	8.1	9.1	2.8	ND (2.1)	13	ND (1)	31	34
	10/15/08	19 - 20	N	4.3	180	19	ND (0.423)	8.6	11	3.1	1.5	12	ND (1.1)	32	37
SWMU1-6	10/15/08	0 - 0.5	N	2.4	110	220	1.32	8.8	11	3.3	1.2	12	ND (1)	41	42
	10/15/08	2 - 3	N	2.1	95	270	2.15	8.1	12	2.6	1.9	13	ND (1)	39	46
	10/15/08	5 - 6	N	2.6	81	32	ND (0.405)	7.7	10	2.6	ND (1)	13	ND (1)	34	29
	10/15/08	9 - 10	N	2.4	79	33	0.531	8.3	8.6	1.7	ND (1)	13	ND (1)	33	88
SWMU1-7	10/15/08	0 - 0.5	N	3.3	98	27	ND (0.403)	8.7	13	6.6	ND (1)	15	ND (1)	37	38
	10/15/08	2 - 3	N	ND (1)	97	630	6.45	9	14	3.6	1.7	15	ND (1)	36	130
	10/15/08	5 - 6	N	1.2	100	330	5.3	8.1	20	2.8	ND (1)	12	ND (1)	35	190
	10/15/08	9 - 10	N	2.4	100	51	0.517	8.2	9.2	1.9	ND (1)	14 J	ND (1)	34	150
	10/15/08	9 - 10	FD	2.4	99	47	0.554	7.9	8.3	1.6	ND (1)	11 J	ND (1)	32	150
SWMU1-8	10/15/08	0 - 0.5	N	2.9	86	120	0.618	8.2	9.1	4.7	ND (1)	14	ND (1)	38	36
	10/15/08	2 - 3	N	1.5	100	970	22.3	8.2	11	3.5	2.2	14	ND (1)	36	160
	10/15/08	5 - 6	N	ND (1)	120	1,600	9.25	9.2	22	3.3	3.2	16	ND (1)	46	120
	10/15/08	9 - 10	N	3.9	39	15	ND (0.433)	7	7.1	2.8	ND (1.1)	11	ND (1.1)	28	32
SWMU1-9	10/14/08	0 - 0.5	N	2.9	110	87	0.697	8.7	10	2.9	1.4	16	ND (1)	36	37
	10/14/08	2 - 3	N	5.6	140	13	ND (0.42)	4.5	5.9	5	ND (1)	8.6	ND (1)	21	26
	10/14/08	5 - 6	N	5.8	45	26	ND (0.417)	8.9	8.1	3.1	ND (2.1)	15	ND (1)	34	39
	10/14/08	9 - 10	N	4.3	150	22	ND (0.425)	9	11	3.2	ND (1.1)	16	ND (1.1)	35	38
SWMU1-10	10/14/08	0 - 0.5	N	2.8	91	19	ND (0.401)	7.8	11	2.6	ND (1)	12	ND (1)	30	32
	10/14/08	2 - 3	N	2.5	100	26	ND (0.403)	8.8	13	2.2	1.8	13	ND (1)	31	33
	10/14/08	5 - 6	N	3.9	44	21	ND (0.413)	10	8.4	2.9	ND (1)	15	ND (1)	36	42
	10/14/08	5 - 6	FD	3.4	48	22	ND (0.413)	9.4	10	2.9	ND (1)	14	ND (1)	36	41
	10/14/08	9 - 10	N	4.9	51	25	ND (0.431)	9.6	15	3.6	ND (1.1)	17	ND (1.1)	37	44
SWMU1-11	10/15/08	0 - 0.5	N	3.6	61	200	1.81	8.4	11	3.8	1.2	15	ND (1.1)	34	65
	10/15/08	2 - 3	N	2.2	92	840	8.82	8.1	11	4.3	4	13	ND (1.1)	34	120

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	39	2,600	3,400	0.22	40	13,000	2,100	0.73	2,300	25	66	77,000
			Background : [2]	11	410	39.8	0.83	12.7	16.8	8.39	1.37	27.3	1.47	52.2	58
Location	Date	Depth (ft bgs)	Sample Type	Arsenic	Barium	Chromium	Chromium Hexavalent	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Vanadium	Zinc
SWMU1-11	10/15/08	5 - 6	N	5.7	37	34	ND (0.431)	9.3	12	3.2	ND (2.1)	16	ND (1.1)	35	96
	10/15/08	9 - 10	N	4.7	36	22	ND (0.432)	9	10	3.4	ND (1.1)	15	ND (1.1)	35	43
SWMU1-12	10/14/08	0 - 0.5	N	2.8	100	19	ND (0.403)	8	8.5	2.7	ND (1)	11	ND (1)	32	31
	10/14/08	2 - 3	N	4.6	88	24	ND (0.406)	9.5	11	2.3	ND (2)	16	ND (1)	34	37
	10/14/08	5 - 6	N	5.5	57	20	ND (0.412)	9.6	13	2.7	ND (2)	15	ND (1)	35	40
	10/14/08	9 - 10	N	10	42	21	ND (0.419)	9.7	11	3.1	ND (5.2)	16	ND (1)	34	41
SWMU1-13	10/14/08	0 - 0.5	N	3.3	120	23	ND (0.407)	7.1	14	5.3	ND (1)	12	ND (1)	33	35
	10/14/08	2 - 3	N	9.7	160	28	ND (0.409)	9.3	11	3.5	ND (5.1)	15	ND (1)	36	39
	10/14/08	2 - 3	FD	9.3	170	27	ND (0.411)	8.7	11	3.5	ND (5.1)	14	ND (1)	34	39
	10/14/08	5 - 6	N	6.4	85	34	ND (0.416)	11	13	2.8	ND (2.1)	20	ND (1)	40	44
	10/14/08	9 - 10	N	5.7	49	30	ND (0.426)	12	16	3.5	ND (1)	20	ND (1)	43	45
SWMU1-14	10/14/08	0 - 0.5	N	2.3	96	20	ND (0.404)	8.8	8.2	2.6	ND (1)	13	ND (1)	33	33
	10/14/08	2 - 3	N	2.8	120	19	ND (0.408)	7.9	14	2.3	ND (1)	12	ND (1)	31	33
	10/14/08	5 - 6	N	5.8	73	28	ND (0.413)	11	17	3.4	ND (2)	20	ND (1)	40	42
	10/14/08	9 - 10	N	5.6	67	52	ND (0.415)	13	35	3.9	ND (1)	32	ND (1)	48	45
SWMU1-15	09/22/08	0 - 0.5	N	2.6	130	25	1.14	8.7	12	4.1	1.9	15	ND (1)	34	36
	09/22/08	2 - 3	N	2.8	130	23	ND (0.422)	9.3	11	3	1.2	17	ND (1.1)	32	34
	09/22/08	5 - 6	N	4.5	100	41	ND (0.424)	12	18	4.5	ND (2.1)	28	ND (1.1)	44	46
	09/22/08	9 - 10	N	4.7	230	58	ND (0.419)	15	24	4.4	ND (2.1)	43	ND (1)	55	50
	09/22/08	9 - 10	FD	5.1	190	60	ND (0.42)	15	23	4.5	ND (2.1)	44	ND (2.1)	53	50
	09/22/08	19 - 20	N	5.5	81	51	ND (0.425)	14	41	4.5	ND (2.1)	37	ND (1.1)	53	50
	09/22/08	29 - 30	N	7.4	110	54	ND (0.433)	14	23	5.4	ND (5.3)	39	ND (1.1)	51	54
	09/22/08	39 - 40	N	4	56	40	ND (0.422)	12	23	3	ND (1)	27	ND (1)	48	47
	09/22/08	49 - 50	N	6.7	160	55	ND (0.439)	13	25	5.4	ND (2.2)	39	ND (1.1)	57	59
	09/22/08	59 - 60	N	8.4	110	47	ND (0.449)	14	23	3	ND (5.3)	34	ND (1.1)	51	49
	09/22/08	59 - 60	FD	5.6	110	44	ND (0.411)	15	24	4.3	ND (2.1)	31	ND (1.1)	52	47
	09/22/08	69 - 70	N	6.1	47	39	ND (0.43)	13	25	3.8	ND (1.1)	27	ND (1.1)	42	53
	09/22/08	79 - 80	N	4.4	94	28	ND (0.43)	11	20	3.2	ND (1.1)	19	ND (1.1)	38	60

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
			Background : [2]	**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
SWMU1-15	09/23/08	89 - 90	N	3.7	560	6.5	ND (0.4)	6.2	ND (4)	ND (2)	ND (2)	7	ND (2)	15	21
SWMU1-16	09/21/08	0 - 0.5	N	2.6	83	10	ND (0.405)	4.5	5.2	2.3	ND (1)	6.8	ND (1)	20	21
	09/21/08	2 - 3	N	1.7	99	18	ND (0.408)	7.9	8.3	2	1	11	1.1	32	34
	09/21/08	5 - 6	N	1.6	110	18	ND (0.406)	7.8	8.9	2	ND (1)	11	1.6	32	35
SWMU1-17	09/21/08	0 - 0.5	N	3.7	210	27	ND (0.403)	11	16	3.5	ND (2)	19	ND (2)	47	46
	09/21/08	2 - 3	N	4.3	180	29	ND (0.405)	10	12	3.9	ND (2)	20	ND (1)	40	40
	09/21/08	5 - 6	N	2.8	130	29	ND (0.407)	10	12	3.1	2.4	18	ND (1)	39	44
	09/21/08	9 - 10	N	3.9	110	43 J	ND (0.408)	13	26	4.4	ND (2)	32	ND (2)	46	41
	09/21/08	9 - 10	FD	4.1	110	53 J	ND (0.408)	14	24	4.7	ND (2)	37	ND (1)	51	46
AOC1-T1a	10/16/08	0 - 0.5	N	6.5	100	19	ND (0.406)	7.3	11	4.9	ND (2)	14	ND (1)	30	38
	10/16/08	2 - 3	N	3.2	120	27	ND (0.404)	7.7	8.6	3.8	2	13	ND (1)	29	37
	10/16/08	5 - 6	N	3.5	110	26	ND (0.405)	7.2	9.5	3.4	2	12	ND (1)	29	34
	10/16/08	9 - 10	N	2.4	88	14	ND (0.404)	7.3	7.5	1.4	ND (1)	9.5	ND (1)	29	32
AOC1-T1b	10/16/08	0 - 0.5	N	2.9	88	43 J	ND (0.405)	8.4	9	3.1	ND (1)	14	ND (1)	36	31
	10/16/08	0 - 0.5	FD	2.8	86	33 J	ND (0.405)	8.2	10	3.2	ND (1)	16	ND (1)	35	32
	10/16/08	2 - 3	N	2.9	210	98	ND (1.94)	7.5	12	3.9	ND (1)	16	ND (1)	33	67
	10/16/08	5 - 6	N	3	99	28	0.402	7.2	9	3.2	1.7	12	ND (1)	31	31
	10/16/08	9 - 10	N	2.6	120	42	ND (0.402)	8	11	2.6	5	14	ND (1)	30	32
AOC1-T1c	10/16/08	0 - 0.5	N	3.2	120	44	0.601	7.4	13	7.5	1.9	11	ND (1)	33	53
	10/16/08	2 - 3	N	2.6	150	140	4.77 J	8	26	20 J	2.5	11 J	ND (1)	33	82 J
	10/16/08	2 - 3	FD	3	170	150	3.58 J	8.2	29	32 J	2.2	14 J	ND (1)	29	110 J
	10/16/08	5 - 6	N	3.1	97	46	0.446	7.2	15	5	3	12	ND (1)	27	44
	10/16/08	9 - 10	N	2.8	120	20	ND (0.418)	8.6	11	1.9	ND (1)	13	ND (1)	33	38
AOC1-T2d	10/07/08	0 - 0.5	N	3	100	46	ND (0.408)	8.2	10	2.9	2.9	14	ND (1)	36	36
	10/07/08	2 - 3	N	ND (1)	120	970	5.73	7.5	13	4.7	1.5	11	ND (1)	34	98
	10/07/08	5 - 6	N	ND (1)	84	370	4.34	6.9	11	3.9	1.1	11	ND (1)	26	130
	10/07/08	9 - 10	N	4.5	86	140	2.92	10	14	3.1	ND (2.1)	15	ND (1)	33	68
	10/07/08	19 - 20	N	5.8	56	26	ND (0.423)	10	9.2	3	ND (2.1)	16	ND (1.1)	38	45

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
			Background : [2]	**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
AOC1-T2d	10/07/08	29 - 30	N	6.2	38	21	ND (0.424)	8.5	8.9	2.7	ND (2.1)	14	ND (1)	31	37
	10/07/08	29 - 30	FD	9.7	40	24	ND (0.423)	8.7	ND (11)	2.2	ND (5.3)	16	ND (1.1)	34	36
	10/07/08	39 - 40	N	6.4	79	22	ND (0.431)	8.9	11	3.6	ND (2.1)	16	ND (1.1)	34	42
	10/07/08	49 - 50	N	4.1	62	28	ND (0.425)	9.3	10	2.1	ND (1.1)	17	ND (1.1)	36	38
	10/08/08	59 - 60	N	5.3	36	39	ND (0.406)	9	9.8	2.2	4.7	13	ND (1)	33	32
	10/08/08	69 - 70	N	4.4	41	18	ND (0.435)	9.1	9.8	2.8	2.2	13	ND (1.1)	31	31
SWMU1-WP-1h	10/07/08	0 - 0.5	N	4.5	53	25	ND (0.418)	8.3	11	3.9	ND (1)	13	ND (1)	32	38
	10/07/08	2 - 3	N	4.4	40	17	ND (0.418)	7.2	8.9	2.8	ND (1)	13	ND (1)	30	34
	10/07/08	5 - 6	N	3.7	23	15	ND (0.417)	7	7.1	2.5	ND (1.1)	11	ND (1.1)	26	39
	10/07/08	9 - 10	N	3.8	29	28	ND (0.422)	8	8.7	2.9	ND (1)	13	ND (1)	29	58
SWMU1-WP-3a	10/14/08	0 - 0.5	N	3.1	100	27	ND (0.419)	7.4	11	3.6	ND (1.1)	13	ND (1.1)	33	40
	10/14/08	2 - 3	N	2.3	100	20	ND (0.419)	8	9.4	2.3	1.1	11	ND (1)	38	34
	10/14/08	5 - 6	N	6	68	27	ND (0.425)	14	15	6.2	ND (2.1)	17	ND (1.1)	37	45
	10/14/08	7 - 8	N	6	69	23	ND (0.417)	9.3	11	3.4	ND (2.1)	18	ND (1)	36	39
	10/14/08	9 - 10	N	12	120	66	ND (0.415)	14	21	2.8	ND (5.1)	45	ND (1)	51	46
	10/14/08	9 - 10	FD	12	120	66	ND (0.414)	15	22	2.7	ND (5.1)	45	ND (1)	52	47
	10/14/08	11 - 12	N	5.1	56	30	ND (0.421)	12	27	4	ND (1)	23	ND (1)	40	40
	10/14/08	13 - 14	N	5.5	40	28	ND (0.426)	10	31	3.8	ND (1)	21	ND (1)	39	40
SWMU1-WP-3h	10/07/08	0 - 0.5	N	5.1	40	17	ND (0.433)	7.4	6.3	1.8	ND (2.1)	11	ND (1.1)	25	33
	10/07/08	2 - 3	N	2.4	89	17	ND (0.404)	7.6	8.6	2.1	ND (1)	12	ND (1)	30	34
	10/07/08	5 - 6	N	2.8	92	21	ND (0.404)	8.7	7.8	2.4	ND (1)	15	ND (1)	31	36
SWMU1-WP-5a	10/05/08	0 - 0.5	N	2.4	91	19	ND (0.405)	8	11	3.9	1	11	ND (1)	36	35
	10/05/08	2 - 3	N	2.3	100	19	ND (0.408)	8.9	9.2	2.4	ND (1)	12	ND (1)	33	35
	10/05/08	5 - 6	N	6.7	120	53	ND (0.419)	13	17	3.9	ND (2.1)	38	ND (1)	52	42
	10/05/08	5 - 6	FD	12	120	58	ND (0.42) J	15	19	3.5	ND (5.2)	42	ND (1)	56	46
	10/05/08	7 - 8	N	6.6	100	53	ND (0.416)	12	18	4.1	ND (2.1)	37	ND (1)	44	41
	10/05/08	9 - 10	N	6.4	76	43	ND (0.421)	13	21	4.2	ND (2.1)	33	ND (1)	47	47
	10/05/08	11 - 12	N	6.8	50	36	ND (0.416)	11	26	3.5	ND (2.1)	26	ND (1)	43	42

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
			Background : [2]	**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
SWMU1-WP-5a	10/05/08	13 - 14	N	4.9	92	27	ND (0.422)	11	13	3.5	ND (1)	20	ND (1)	40	52
SWMU1-WP-5h	10/07/08	0 - 0.5	N	3.4	73	14	ND (0.43)	12	12	2.7	ND (1.1)	9.5	ND (1.1)	23	31
	10/07/086	2 - 3	N	5.3	130	33	ND (0.435)	8.7	12	4.9	ND (2.1)	14	ND (1.1)	31	46
	10/07/08	5	N	3.2	110	23	ND (0.415)	8.5	11	3.3	ND (1)	14	ND (1)	33	40
SWMU1-WP-6a	10/05/08	0 - 0.5	N	2.9	100	32	ND (0.405)	9.3	10	7.2	2.5	15	ND (1)	30	35
	10/05/08	2 - 3	N	2.3	81	19	ND (0.404)	8.8 J	10	2.3	ND (1)	12	ND (1)	34	35
	10/05/08	2 - 3	FD	2.4	82	19	ND (0.403)	11 J	9.2	2.2	ND (1)	12	ND (1)	34	33
	10/05/08	5 - 6	N	6.2	180	41	ND (0.413)	12	19	3.2	ND (2.1)	27	ND (1)	43	44
	10/05/08	7 - 8	N	6	66	35	ND (0.414)	10	18	3.5	ND (2.1)	24	ND (1)	40	38
	10/05/08	9 - 10	N	11	98	26	ND (0.412)	11	14	2.4	ND (5.1)	19	ND (1)	40	39
	10/05/08	11 - 12	N	4.3	71	51	ND (0.411)	10	17	3.1	3.6	22	ND (1)	38	35
	10/05/08	13 - 14	N	6.7	110	60	ND (0.41)	14	15	3.6	ND (2)	43	ND (1)	55	43
SWMU1-WP-6h	10/06/086	0 - 0.5	N	4.7	150	130	4.98	8.8	15	5.5	ND (2)	17	ND (1)	37	87
	10/06/08	2 - 3	N	5.5	70	23	0.538	19	61	6.6	ND (1)	15	ND (1)	36	34
	10/06/08	5 - 6	N	2.7	100	19	ND (0.406)	8	10	2.4	ND (1)	12	ND (1)	34	36
	10/06/08	5 - 6	FD	2.7	100	20	ND (0.405)	8.1	12	2.3	ND (1)	12	ND (1)	32	37
	10/06/08	9 - 10	N	4.1	100	41	ND (0.409)	9.4	23	3.5	ND (1.1)	27	ND (1.1)	36	39
SWMU1-WP-7	10/06/08	0 - 0.5	N	ND (5.3)	160	2,600	0.566	7.2	11	13	7.1	15	ND (1.1)	35	88
	10/06/086	2 - 3	N	6	190	1,200	18.2	7.4	16	5.7	3.4	17	ND (1.1)	35	56
	10/06/08	5 - 6	N	3	110	21	6.17	8	11	2.7	ND (1)	12	ND (1)	31	34
	10/06/08	9 - 10	N	3	82	23	ND (0.417)	7.2	15	2.7	ND (1)	15	ND (1)	30	31
SWMU1-WP-8	10/06/08	0 - 0.5	N	5.4	150	35	ND (0.402)	7.5	13	6.9	ND (2)	16	ND (1)	31	47
	10/06/08	2 - 3	N	5.1	160	26	0.541	7.9	10	4.1	ND (2.1)	17	ND (1.1)	32	32
	10/06/08	5 - 6	N	2.7	130	19	ND (0.407)	8.3	10	2.7	ND (1)	13	ND (1)	34	38
	10/06/08	9 - 10	N	2.9	120	22	ND (0.411)	7.9	9.8	2.6	ND (1)	12	ND (1)	38	38
SWMU1-WP-9	09/21/08	0 - 0.5	N	2.4	100	26	ND (0.406)	7.6	8.2	2.9	2.1	12	ND (1)	30	33
	09/21/08	2 - 3	N	2.7	150 J	34 J	ND (0.407)	9.5 J	15	2.3	1.2	20 J	2.5	35	34
	09/21/08	2 - 3	FD	2.1	1,900 J	20 J	ND (0.409)	5.9 J	10	2.7	ND (1)	12 J	ND (1)	32	34

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
Soil Screening Levels : [1]				**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
Background : [2]				**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
SWMU1-WP-9	09/21/08	5 - 6	N	4.2	75	39	ND (0.416)	13	15	3.2	ND (2)	26	1.3	49	43
	09/21/08	7 - 8	N	4.8	58	28	ND (0.416)	10	14	3.5	ND (2.1)	20	ND (1)	39	45
	09/21/08	9 - 10	N	4.7	77	37	ND (0.411)	12	15	3.3	ND (2)	28	ND (1)	43	43
	09/21/08	11 - 12	N	7.1	88	68	ND (0.422)	16	23	4	ND (5.2)	51	ND (1)	56	56
	09/21/08	13 - 14	N	5.3	91	60	ND (0.423)	15	22	4.9	ND (2.1)	46	ND (1)	56	52
SWMU1-WP-10	10/05/08	0 - 0.5	N	4.4	150	540	6.64	7.1	11	8.3	ND (2.1)	15	ND (1)	32	56
	10/05/08[6]	2 - 3	N	5.3	180	1,400	3.85	8.8	18	10	ND (5.2)	16	ND (1)	39	360
	10/05/08	5 - 6	N	5.5	81	50	0.494 J	8	12	3.6	ND (2.1)	15	ND (1.1)	33	53
	10/05/08	9 - 10	N	4.8	110	250	2.31	9.4	11	5.4	ND (2.1)	18	ND (1.1)	33	83
SWMU1-WP-T3a	10/05/08	0 - 0.5	N	2.6	110	25	ND (0.41)	10	11	2.8	ND (1)	12	ND (1)	38	39
	10/05/08	2 - 3	N	2	92	18	ND (0.411)	9.2	12	2.9	ND (1)	11	ND (1)	32	35
	10/05/08	5 - 6	N	4.1	82	26	ND (0.431)	11	16	3.4	ND (1.1)	19	ND (1.1)	38	40
	10/05/08	5 - 6	FD	4.2	80	26	ND (0.438)	10	15	3.7	1.1	19	ND (1.1)	38	39
	10/05/08	7 - 8	N	6.1	86	38	ND (0.429)	12	19	4.4	ND (2.1)	28	ND (1.1)	43	44
	10/05/08	9 - 10	N	5.1	140	71	ND (0.406)	13	20	3.4	6.4	29	ND (1)	44	42
	10/05/08	11 - 12	N	7.1	92	50	ND (0.42)	15	17	4.5	ND (2.1)	38	ND (1)	54	42
	10/05/08	13 - 14	N	11	100	62	ND (0.424)	14	30	3.8	ND (5.3)	45	ND (1.1)	53	51
SS-3	06/29/97	0.5	N	---	---	---	ND (0.05)	---	---	---	---	---	---	---	---
SSB-1	06/25/97	1	N	---	---	13.7	ND (0.05)	---	14.9	---	---	11.6	---	---	35.7
	06/25/97	3	N	---	---	13.6	ND (0.05)	---	11	---	---	12	---	---	29.6
	06/25/97	6	N	---	---	16.7	ND (0.05)	---	16.9	---	---	12.2	---	---	34.5
	06/25/97	10	N	---	97.3	16.5	ND (0.05)	---	8.2	1.3	ND (0.2)	12.9	---	24.6	31.9
SSB-2	06/30/97	1	N	---	---	48.7	ND (0.05)	---	7.4	---	---	7.9	---	---	27.3
	06/30/97	3	N	---	---	7.6	ND (0.05)	---	6.8	---	---	5.7	---	---	20.4
	06/30/97	6	N	---	---	10.1	ND (0.05)	---	9.4	---	---	7.9	---	---	27
	06/30/97	10	N	---	46.4	9.7	ND (0.05)	---	11	3.1	ND (0.2)	11.7	---	20.2	27.3
SSB-3	06/30/97	1	N	---	---	8.2	ND (0.05)	---	4.3	---	---	6	---	---	13.7
	06/30/97	3	N	---	---	13.2	ND (0.05)	---	9.5	---	---	10.4	---	---	21.4

TABLE C1-12
Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
Soil Screening Levels : [1]				**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
Background : [2]				**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
SSB-3	06/30/97	6	N	---	---	23.5	ND (0.05)	---	13.7	---	---	16.4	---	---	27.1
	06/30/97	10	N	---	70	7.1	ND (0.05)	---	13.4	2.3	ND (0.2)	7.7	---	15.5	19.2
SSB-4	06/30/97	1	N	---	---	10.1	ND (0.05)	---	3	---	---	3.9	---	---	11.9
	06/30/97	3	N	---	---	1,520	ND (0.05)	---	10.3	---	---	5.4	---	---	141
	06/30/97	6	N	---	---	297	ND (0.05)	---	12.4	---	---	6.9	---	---	130
	06/30/97	10	N	---	93.9	201	ND (0.05)	---	11.9	2.1	ND (0.2)	7.4	---	19.3	188
SSB-5	06/30/97	1	N	---	---	521	0.06	---	13.5	---	---	7.8	---	---	39.6
	06/30/97	3	N	---	---	1,440	ND (0.05)	---	16	---	---	4.2	---	---	128
	06/30/97	6	N	---	---	617	ND (0.05)	---	14.9	---	---	6.4	---	---	115
	06/30/97	10	N	---	89.6	31.6	ND (0.05)	---	7	1.75	ND (0.2)	7.7	---	18.7	107
WP-1	06/30/97	0	N	---	---	2,090	47.5	---	3.9	---	---	3.6	---	---	44.5
WP-2	09/18/97	0	N	---	---	25.9	ND (0.5)	---	22.8	---	---	9.9	---	---	80.1
WP-3	09/18/97	0.5	N	---	---	1,290	11.8	---	13.2	---	---	5.6	---	---	50.3
	09/18/97	2	N	---	---	273	0.41	---	18.6	---	---	18.3	---	---	50
WP-4	09/18/97	0	N	---	---	120	1.14	---	10.8	---	---	4	---	---	65.6
WP-5	09/18/97	0	N	---	---	511	3.51	---	16.8	---	---	13.2	---	---	50.4
	09/18/97	1	N	---	---	711	6.66	---	15.4	---	---	10.2	---	---	61.5
	09/18/97	2	N	---	---	421	8.97	---	15.8	---	---	12.9	---	---	51.9
	09/18/97	3	N	---	---	158	6.1	---	10.1	---	---	4.5	---	---	22.9
	09/18/97	4	N	---	---	113	10.2	---	24.4	---	---	20.6	---	---	41.9
WP-6	09/18/97	0	N	---	---	712	1.64	---	21.6	---	---	12.4	---	---	57.9
	09/18/97	1	N	---	---	1,030	9.46	---	18.2	---	---	5.8	---	---	46.5
	09/18/97	2	N	---	---	401	2.29	---	11.9	---	---	10.5	---	---	210
WP-BANK 1	11/23/98	0	N	---	---	261	5.5	---	10.3	---	---	3.8	---	---	23.4
WP-BANK 2	11/23/98	0	N	---	---	909	14	---	27.2	---	---	7.9	---	---	61.8
XMW-9	06/25/97	3	N	---	---	18.4	ND (0.05)	---	12	---	---	9	---	---	25.8
	06/25/97	10	N	---	257	45.7	ND (0.05)	---	19.7	5.7	0.075 J	35.2	---	44.5	44.2

TABLE C1-12

Sample Results Compared to the Calculated Soil Screening Levels
AOC1 South/SMWU1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station, Needles, California

				Metals (mg/kg)											
			Soil Screening Levels : [1]	**39**	**2,600**	**3,400**	**0.22**	**40**	**13,000**	**2,100**	**0.73**	**2,300**	**25**	**66**	**77,000**
			Background : [2]	**11**	**410**	**39.8**	**0.83**	**12.7**	**16.8**	**8.39**	**1.37**	**27.3**	**1.47**	**52.2**	**58**
Location	**Date**	**Depth (ft bgs)**	**Sample Type**	**Arsenic**	**Barium**	**Chromium**	**Chromium Hexavalent**	**Cobalt**	**Copper**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Vanadium**	**Zinc**
XMW-9	06/25/97	10	FD	---	---	31.1	ND (0.05)	---	16.7	---	---	27	---	---	38.7
	06/25/97	30	N	---	88.1	35.6	ND (0.05)	---	17.2	7.2	0.11 J	32.1	---	42.9	50.3
	06/25/97	50	N	---	57.4	36.3	ND (0.05)	---	15.6	4.5	ND (0.2)	28.5	---	37.7	54.2
	06/25/97	70	N	---	1,580	6.7	ND (0.05)	---	170	6.1	1.8	7.4	---	19.7	54.6
P-2Soil	11/13/98	3.5	N	---	---	33.2	ND (0.76)	---	6	---	---	5.6	---	---	6.4

[1] Soil Screening Level (SSL) calculation was provided in the technical memorandum entitled "Calculation of Soil Screening Levels for Protection of Groundwater at the PGE Topock Compressor Station", CH2MHill 2008.

[2] CH2M HILL. 2009. "Final Soil Background Technical Memorandum at Pacific Gas and Electric Company Topock Compressor Station, Needles, California." May.

Cobalt has no MCL. EPA tapwater regional screening level (11 ug/L) was used in place of MCL.

Results greater than or equal to the SSL and greater than or equal to the background value are circled.

mg/kg	milligrams 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

TABLE C1-13

Constituent Concentrations in Soil Compared to Total Threshold Limit Concentration (TTLC), Soluble Threshold Limit Concentration (STLC), and Toxic Characteristic Leaching Procedure (TCLP)
SWMU 1 - Former Percolation Bed
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Topock Compressor Station, Needles, California

Parameter	Frequency of detection	Maximum Detected Value (mg/kg)	TTLC in mg/kg[1]		STLC in mg/L[1]			TCLP in mg/L[1]		
			# of Exceedences	TTLC	# of Exceedences of STLC x 10	STLC x 10	STLC	# of Exceedences of TCLP x 20	TCLP x 20	TCLP
Antimony	0 / 141 (0%)	ND (4)	0	500	0	150	15	0	NE	NE
Arsenic	134 / 141 (95%)	12	0	500	0	50	5	0	100	5
Barium	149 / 149 (100%)	1,900	0	10000	1	1000	100	0	2000	100
Beryllium	0 / 141 (0%)	ND (5.3)	0	75	0	7.5	0.75	0	NE	NE
Cadmium	0 / 141 (0%)	ND (2)	0	100	0	10	1	0	20	1
Chromium	185 / 185 (100%)	3,200	2	2500	58	50	5	37	100	5
Chromium, Hexavalent	48 / 185 (26%)	47.5	0	500	0	50	5	0	NE	NE
Cobalt	141 / 141 (100%)	19	0	8000	0	800	80	0	NE	NE
Copper	184 / 185 (99%)	61	0	2500	0	250	25	0	NE	NE
Lead	148 / 149 (99%)	13	0	1000	0	50	5	0	100	5
Mercury	0 / 141 (0%)	ND (0.12)	0	20	0	2	0.2	0	4	0.2
Molybdenum	31 / 149 (21%)	7.8	0	3500	0	3500	350	0	NE	NE
Nickel	185 / 185 (100%)	51	0	2000	0	200	20	0	NE	NE
Selenium	4 / 141 (2.8%)	2.5	0	100	0	10	1	0	20	1
Silver	0 / 141 (0%)	ND (5.3)	0	500	0	50	5	0	100	5
Thallium	0 / 141 (0%)	ND (11)	0	700	0	70	7	0	NE	NE
Vanadium	149 / 149 (100%)	57	0	2400	0	240	24	0	NE	NE
Zinc	185 / 185 (100%)	673	0	5000	0	2500	250	0	NE	NE

Notes:

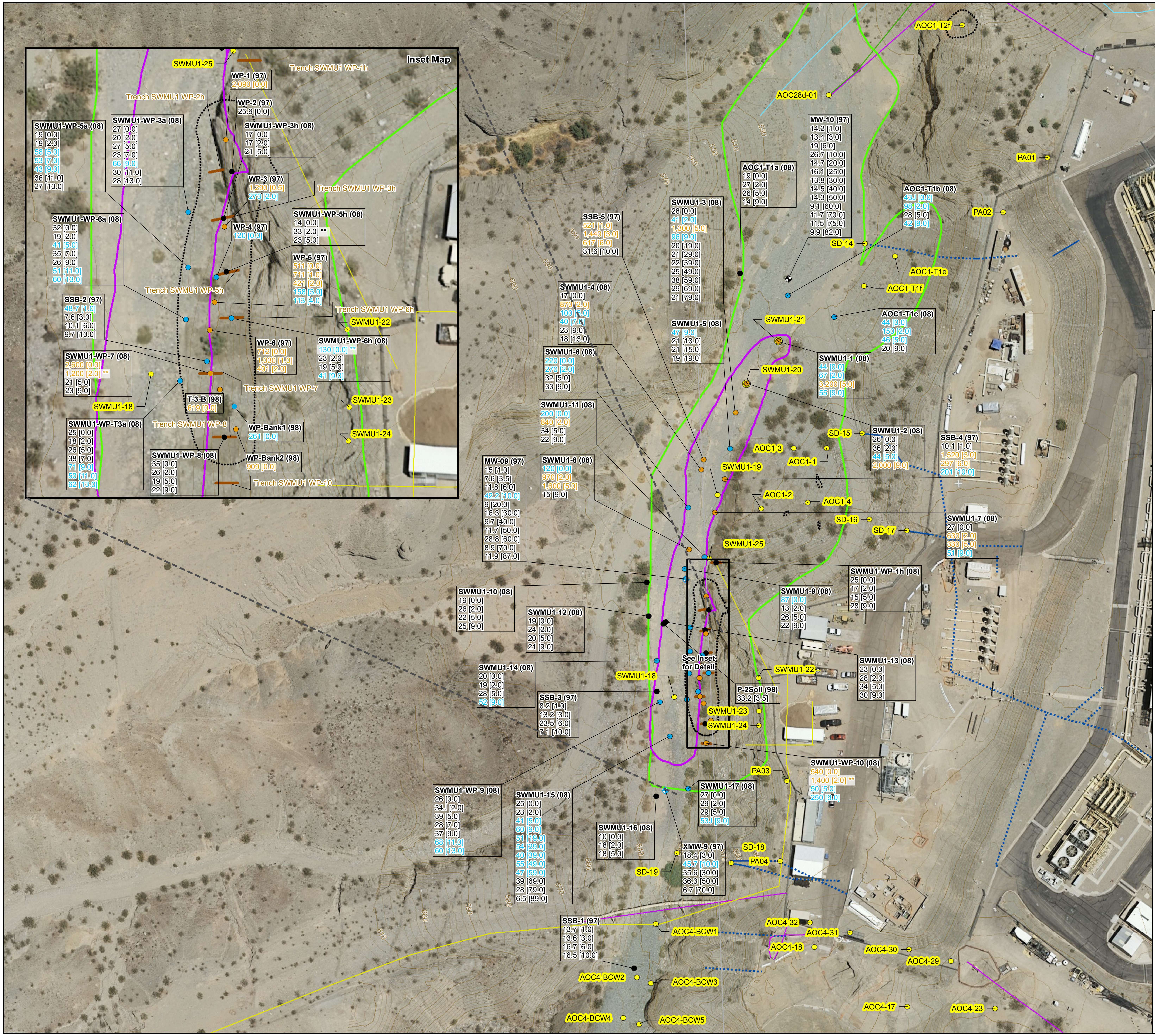
[1] Code of Regulations, Title 22, Chapter 11, Article 3
mg/kg miligrams per kilogram
mg/L milligrams per liter
ND not detected in any of the samples
NE not established
‡ maximum reporting limit greater than or equal to the STLC x 10.

TABLE C1-14
Proposed Phase 2 Sampling Locations at SWMU 1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report,
PG&E Topock Compressor Station, Needles, California

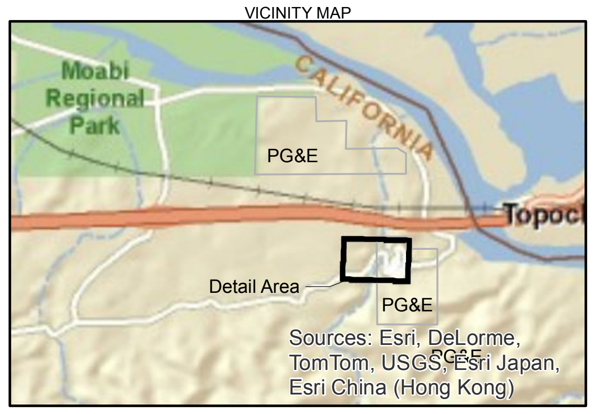
Location ID	Depths (ft bgs)	Description/Rationale	Analytes	Proposed Collection Method[c]
SWMU1-18	0, 2, 5, 9, 14, 20, 30, 40, 50, 60, 70, and 80	To resolve Data Gaps #1, #3, and #4 - Define lateral and vertical extents of contamination in southern part of AOC 1 and support CMS/FS.	Hexavalent chromium, Title 22 metals, PCBs[a]; soil physical parameters (Atterberg limits, relative compaction, alkalinity, cation exchange, capacity, and particle size distribution) – three samples from boring	Rotosonic
SWMU1-19	0, 2, 5, 9, 14, 20, 30, 40, 50, 60, 70, and 80	To resolve Data Gap #1, #3, and #4 - Define lateral and vertical extents of contamination in bottom of Bat Cave Wash and support CMS/FS.	Hexavalent chromium, Title 22 metals, PCBs[a]; soil physical parameters (Atterberg limits, relative compaction, alkalinity, cation exchange, capacity, and particle size distribution) – three samples from boring	Rotosonic
SWMU1-20	14, 20, 30, 40, 50, 60, 70, and 80	To resolve Data Gaps #1 and #3 - Define vertical extent of contamination at previous sample location SWU1-2.	Hexavalent chromium, Title 22 metals, PCBs[a]	Rotosonic
SWMU1-21	14, 20, 30, 40, 50, 60, 70, and 80	To resolve Data Gaps #1 and #3 - Define vertical extent of contamination at previous sample location SWU1-1.	Hexavalent chromium, Title 22 metals, PCBs[a]	Rotosonic
SWMU1-22	None – pothole sample location	To resolve Data Gap #2 – Define lateral extent of white powder area and collect a sample of the white powder material and soil.	Hexavalent chromium, Title 22 metals, PCBs[a], SPLP[b] and general chemistry analyses[b]	Backhoe
SWMU1-23	None – pothole sample location	To resolve Data Gap #2 – Define lateral extent of white powder area and collect a sample of the white powder material and soil.	Hexavalent chromium, Title 22 metals, PCBs[a], SPLP[b] and general chemistry analyses[b]	Backhoe
SWMU1-24	None – pothole sample location	To resolve Data Gap #2 – Define lateral extent of white powder area and collect a sample of the white powder material and soil.	Hexavalent chromium, Title 22 metals, PCBs[a], SPLP[b] and general chemistry analyses[b]	Backhoe
SWMU1-25	0, 2, 5, and 9	To resolve Data Gap #5 – Assess potential contamination at the toe of the slope in Bat Cave Wash below a potential historical discharge pipe.	Hexavalent chromium, Title 22 metals, PCBs[a]	Backhoe

Notes:
[a] PCB analysis only on soil samples collected at 0 and 2 feet bgs.
[b] White powder samples only.
[c] Proposed anticipated collection methods listed on this table are based on experience and knowledge of the site; actual collection method will be chosen in the field based on field conditions and site access restrictions.

Figures



VICINITY MAP



LEGEND

- Proposed Phase 2 Soil Sample Location
- Monitoring Well
- Soil Boring
- Property Boundary
- Approximate trench location and extent
- AOC 1 Boundary
- White Powder Area
- SWMU1 Boundary
- Approximate Location of Stormwater Piping Below Ground
- Approximate Location of Stormwater Piping Above Ground
- Historical Discharge Piping
- Mojave Pipeline
- PG&E Pipeline
- SoCal Gas Pipeline
- Transwestern Pipeline

SSB-7 (08) — Sample Location; Installation Year
20 [1] — Sample Beginning Depth (ft bgs); Soil Concentration (mg/kg)

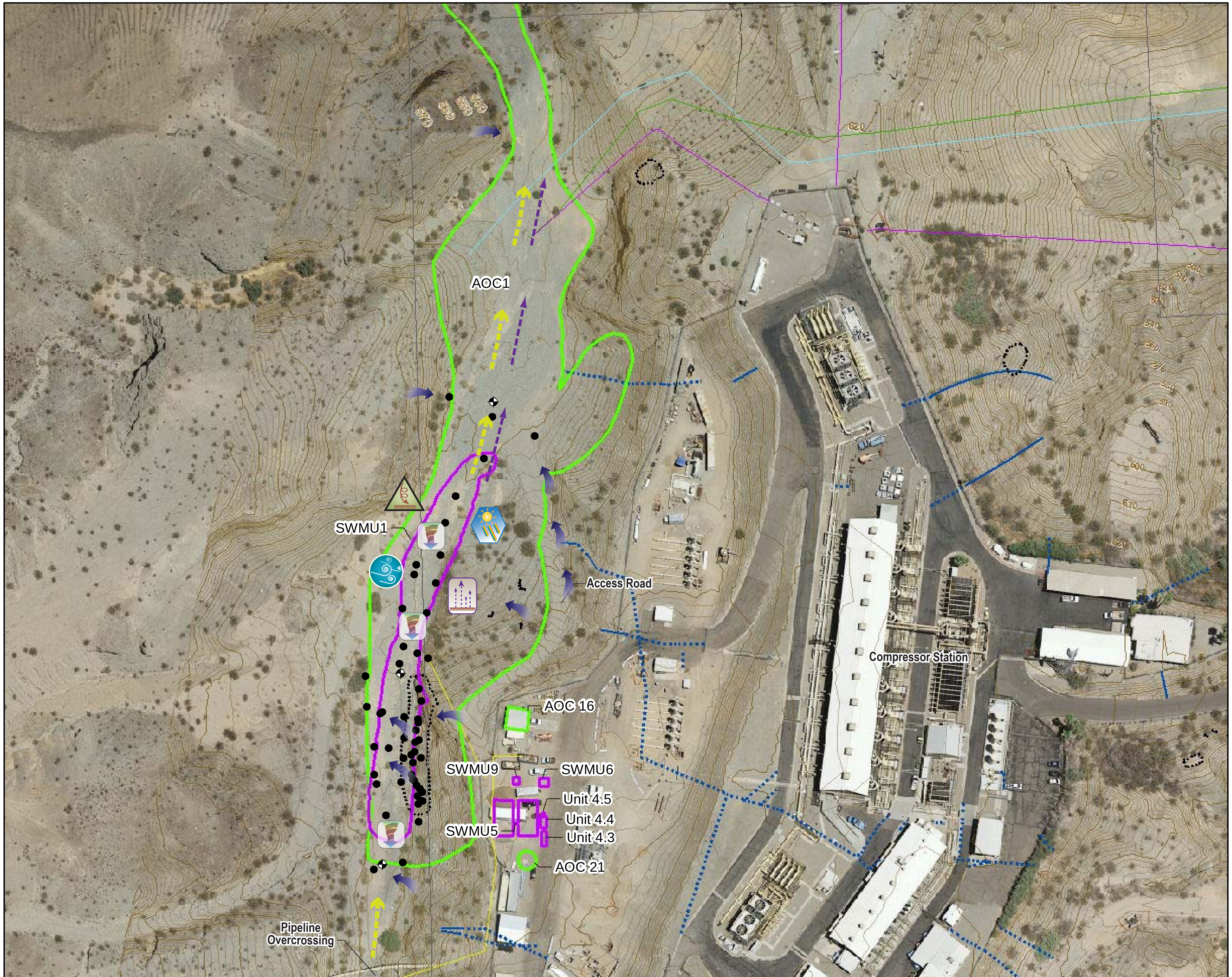
Notes:
1. ND = Not Detected (Reporting Limit in parentheses)
2. mg/kg = milligrams per kilogram
3. ft bgs = feet below ground surface
4. ** = White Powder Sample (highlighted)
5. Results greater than Background (39.8 mg/kg) are shown in BLUE.
6. Results greater than or equal to the U.S Emvironmental Protection Agency Residential Regional Screening Level (280 mg/kg) are shown in ORANGE.
7. J = Estimated Result.
8. Ecological Comparison Value (36.3 mg/kg) is below background value; therefore, the screening level is set at the background value.
9. Topographic contours shown are in 2 foot intervals.

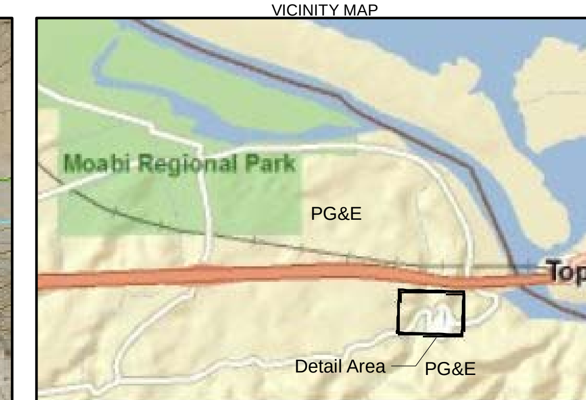
N

0 50 100
Feet

FIGURE C1-1
Total Chromium
Soil Sample Results
SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California





LEGEND

- Soil Boring
- Monitoring Well
- AOC Boundary
- SWMU/Unit Boundary
- White Powder Area
- Property Boundary
- Mojave Pipeline
- PG&E Pipeline
- SoCal Gas Pipeline
- Transwestern Pipeline
- Historical Discharge Piping
- Approximate Location of Stormwater Piping Below Ground
- Approximate Location of Stormwater Piping Above Ground

Potential Release Mechanisms

- Infrequent Surface Water Runoff
- Infiltration (Site-wide)
- Windblown Dispersion of Soil (Site-wide)
- Volatilization (Site-wide)
- Degradation by Heat/Light (Site-wide)
- Surface Soil Scouring & Redeposition (Possible Throughout the Wash)
- Downstream Movement During Flow Events
- Historic Waste Water Flow

Note:
Topographic contours shown are in 2 foot intervals.

N

0 125 250
Feet

FIGURE C1-2
Conceptual Site Model for SWMU-1
Soil Investigation Part A
Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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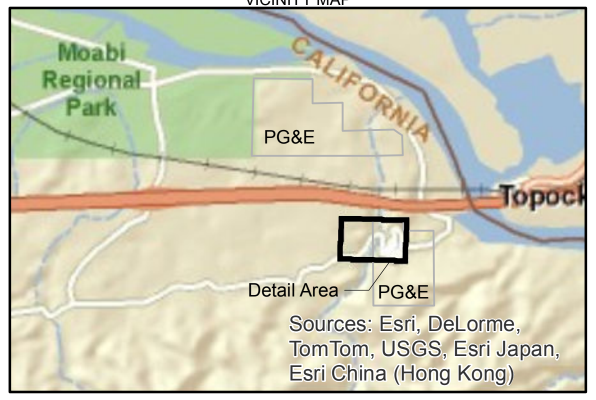
VICINITY MAP



LEGEND

- Proposed Phase 2 Soil Sample Location
- Monitoring Well
- Approximate trench location and extent
- Property Boundary
- AOC 1 Boundary
- SWMU 1 Boundary
- White Powder Area
- Approximate Location of Stormwater Piping Below Ground
- Approximate Location of Stormwater Piping Above Ground
- Historical Discharge Piping
- Mojave Pipeline
- PG&E Pipeline
- SoCal Gas Pipeline
- Transwestern Pipeline

SSB-7 (08) — Sample Location — Installation Year
20 [1] — Sample Beginning Depth (ft bgs) — Soil Concentration (mg/kg)

Notes:
1. ND = Not Detected (Reporting Limit in parentheses)
2. mg/kg = milligrams per kilogram
3. ft bgs = feet below ground surface
4. ** = White Powder Sample (highlighted)
5. Results greater than Background (0.83 mg/kg) are shown in BLUE.
6. Results greater than or equal to the Ecological Comparison Value (139.6 mg/kg) are shown in PURPLE.
7. Results greater than or equal to the California Department of Toxic Substances Control Residential California Human Health Screening Level (17 mg/kg) are shown in ORANGE.
8. J = Estimated Result.
9. Topographic contours shown are in 2 foot intervals.

0 35 70
Feet

N

FIGURE C1-3
Hexavalent Chromium Soil Sample Results SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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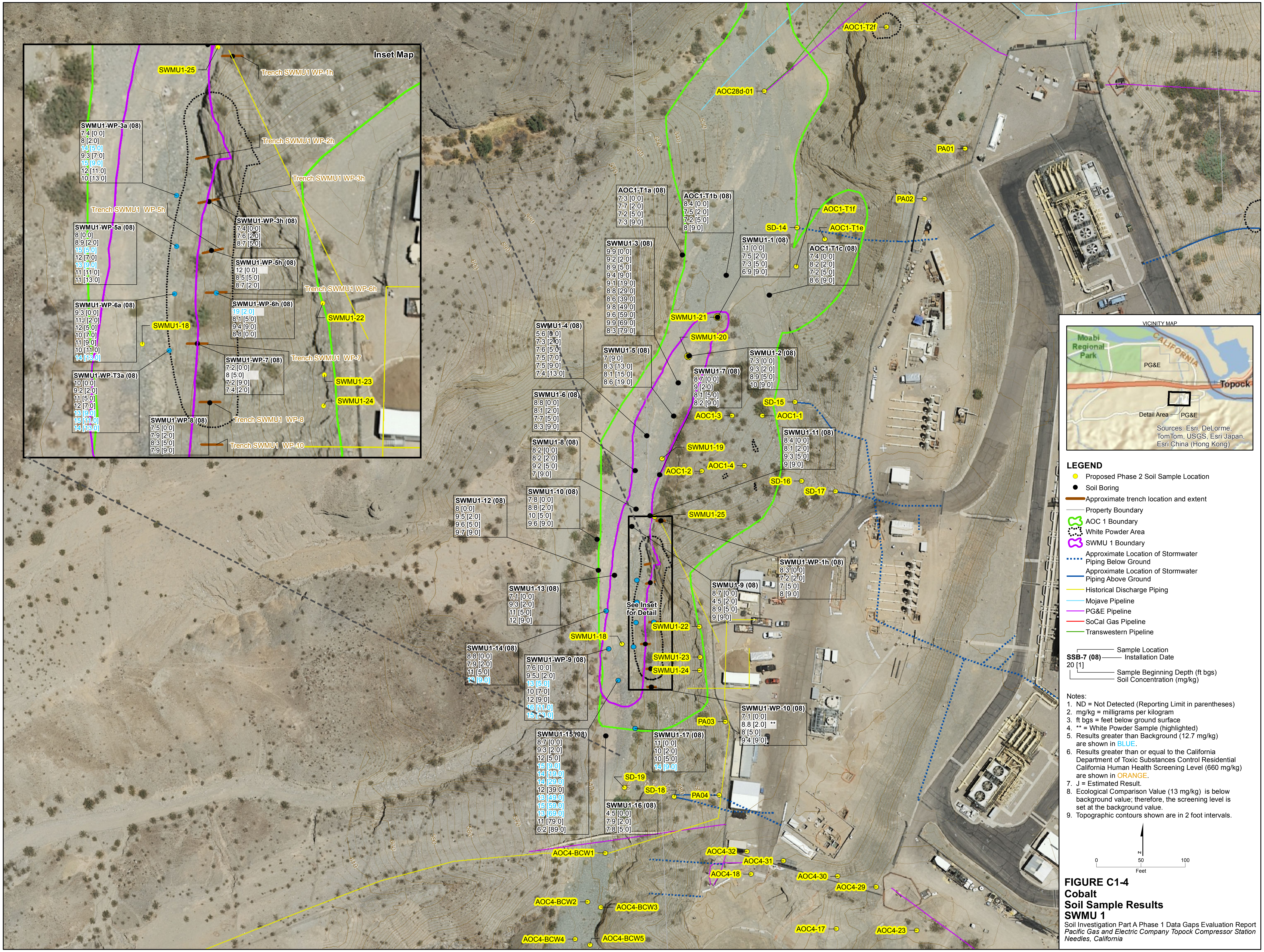

FIGURE C1-4
Cobalt
Soil Sample Results
SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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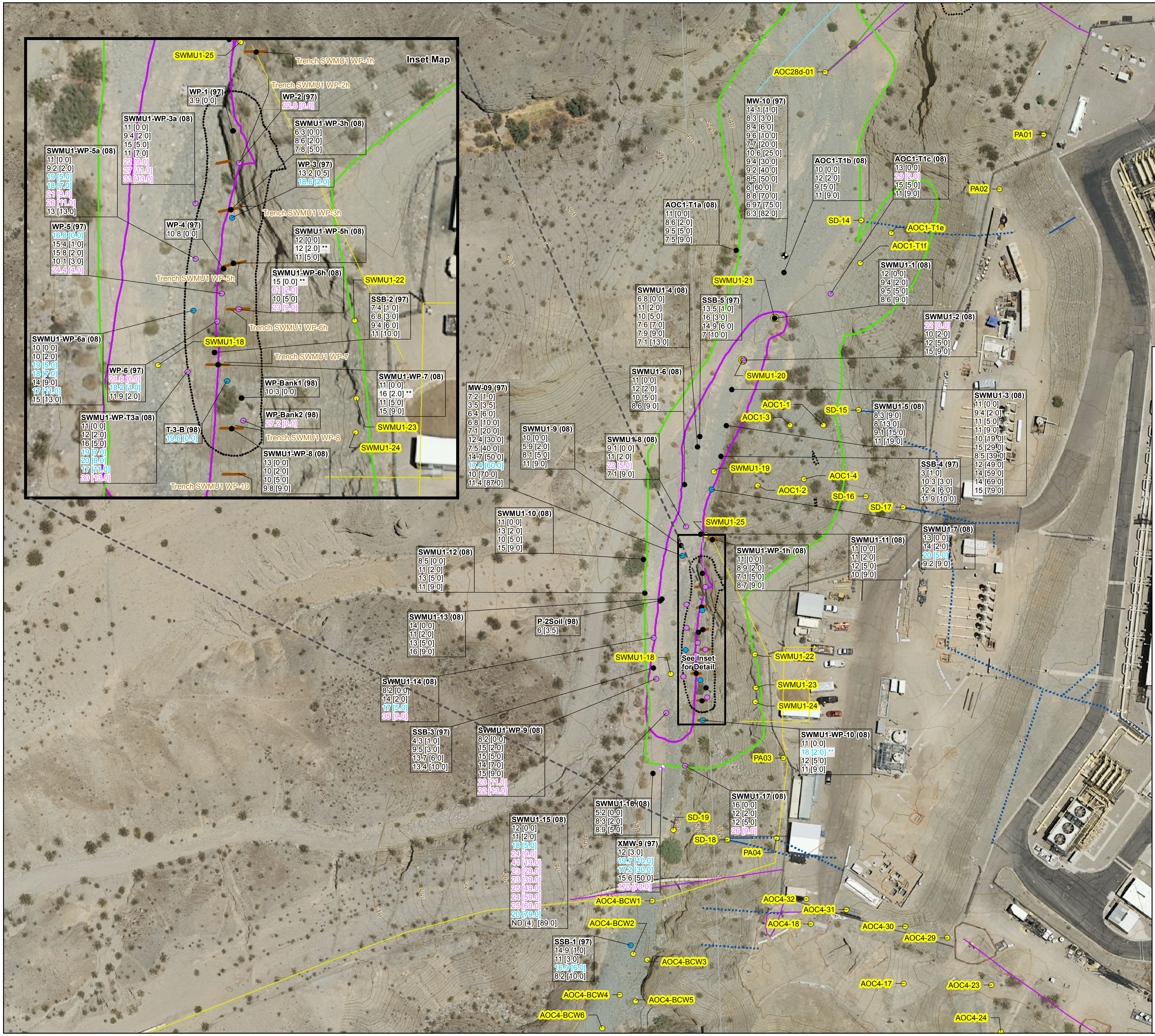
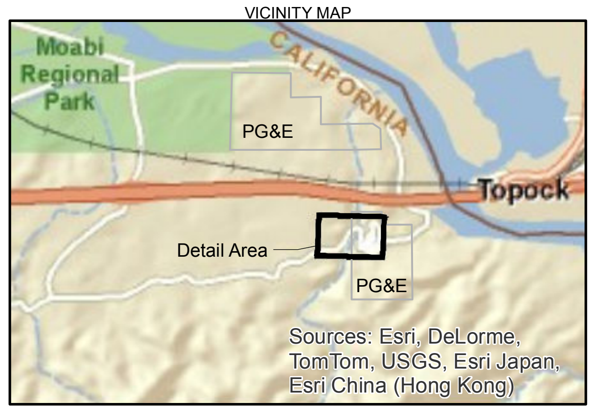


VICINITY MAP



LEGEND

- Proposed Phase 2 Soil Sample Location
- Soil Boring
- Approximate trench location and extent
- Property Boundary
- AOC 1 Boundary
- White Powder Area
- SWMU 1 Boundary
- Approximate Location of Stormwater Piping Below Ground
- Approximate Location of Stormwater Piping Above Ground
- Historical Discharge Piping
- Mojave Pipeline
- PG&E Pipeline
- SoCal Gas Pipeline
- Transwestern Pipeline

SSB-7 (08) — Sample Location; Installation Year
20 [1] — Sample Beginning Depth (ft bgs); Soil Concentration (mg/kg)

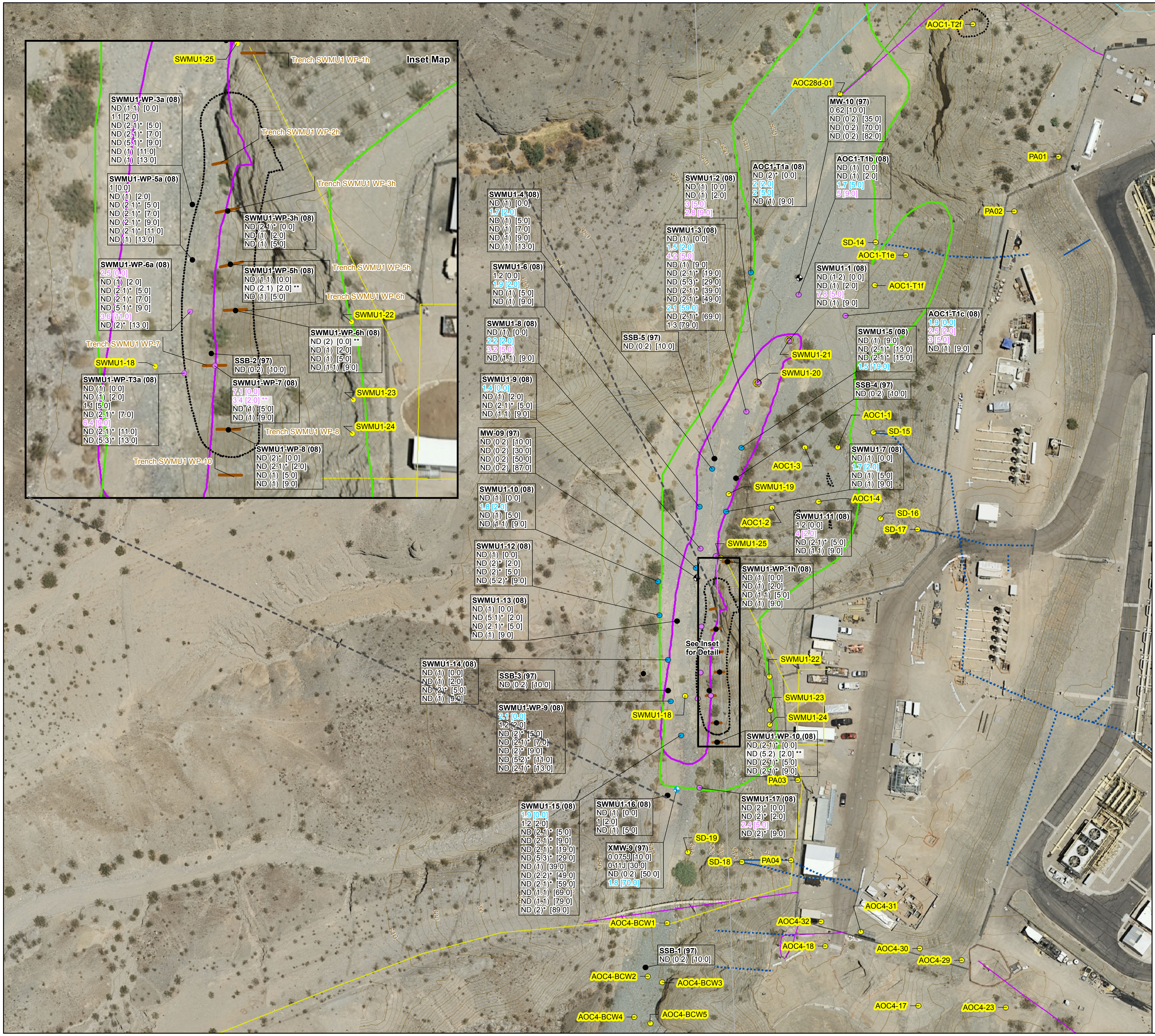
Notes:
1. ND = Not Detected (Reporting Limit in parentheses)
2. mg/kg = milligrams per kilogram
3. ft bgs = feet below ground surface
4. Results greater than Background (16.8 mg/kg) are shown in BLUE.
5. Results greater than or equal to the Ecological Comparison Value (20.6 mg/kg) are shown in PURPLE.
6. Results greater than or equal to the California Department of Toxic Substances Control Residential California Human Health Screening Level (3,000 mg/kg) are shown in ORANGE.
7. ** = White Powder Sample (highlighted)
8. J = Estimated Result.
9. Topographic contours shown are in 2 foot intervals.

N

0 50 100
Feet

FIGURE C1-5
Copper
Soil Sample Results
SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California



LEGEND

- Proposed Phase 2 Soil Sample Location
- Monitoring Well
- Soil Boring
- Approximate trench location and extent
- Property Boundary
- AOC 1 Boundary
- White Powder Area
- SWMU 1 Boundary
- Approximate Location of Stormwater Piping Below Ground
- Approximate Location of Stormwater Piping Above Ground
- Historical Discharge Piping
- Mojave Pipeline
- PG&E Pipeline
- SoCal Gas Pipeline
- Transwestern Pipeline

SSB-7 (08) — Sample Location; Installation Year
20 [1] — Sample Beginning Depth (ft bgs); Soil Concentration (mg/kg)

Notes:
1. ND = Not Detected (Reporting Limit in parentheses)
2. mg/kg = milligrams per kilogram
3. ft bgs = feet below ground surface
4. Results greater than Background (1.37 mg/kg) are shown in BLUE.
5. Results greater than or equal to the Ecological Comparison Value (2.25 mg/kg) are shown in PURPLE.
6. Results greater than or equal to the California Department of Toxic Substances Control Residential California Human Health Screening Level (380 mg/kg) are shown in ORANGE.
7. J = Estimated Result.
8. ** =White Powder Sample (highlighted)
9. * = Laboratory reporting limit exceeds screening levels.
10. Topographic contours shown are in 2 foot intervals.

N

0 50 100

Feet

FIGURE C1-6
Molybdenum
Soil Sample Results
SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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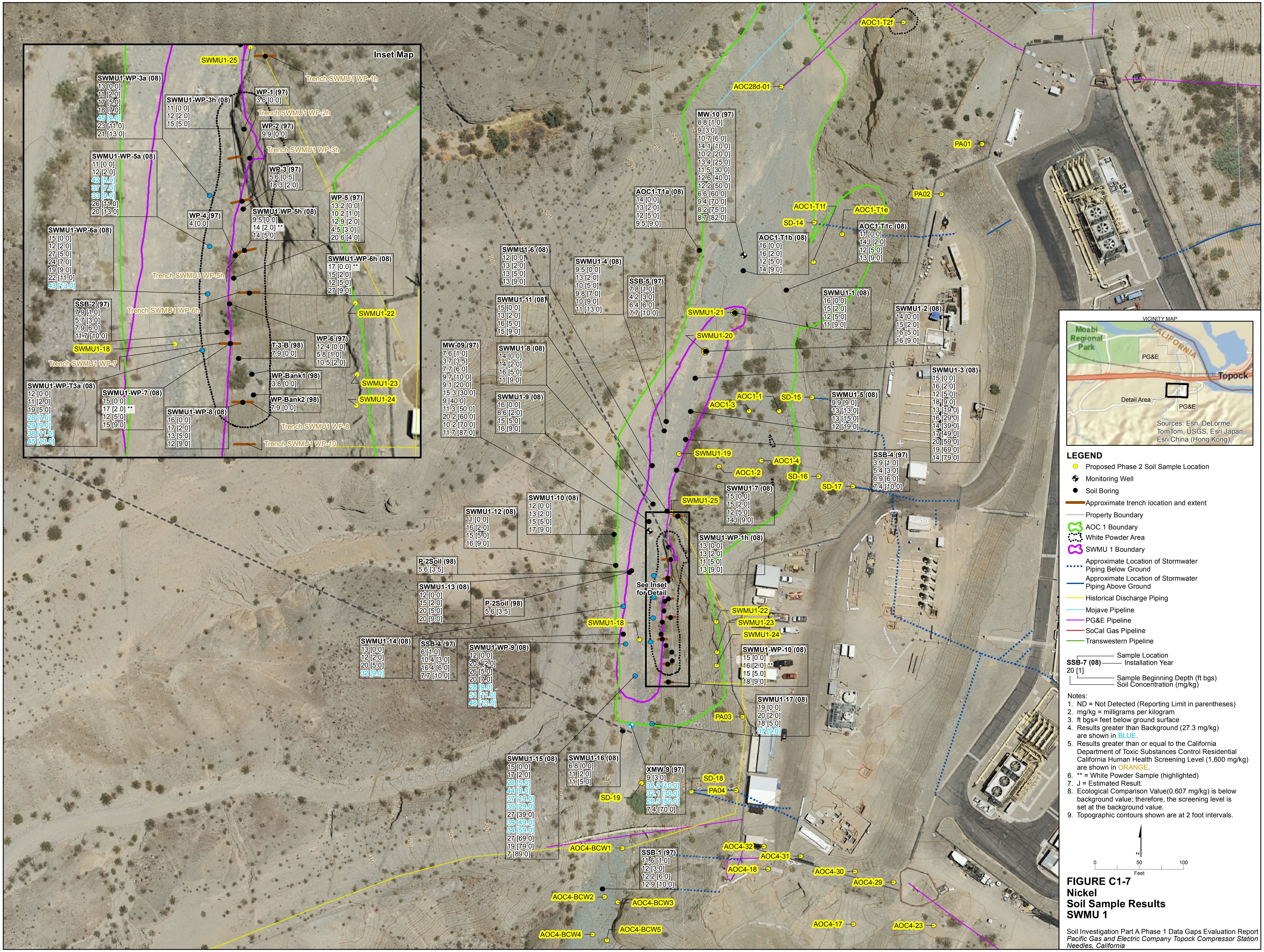

FIGURE C1-7
Nickel
Soil Sample Results
SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

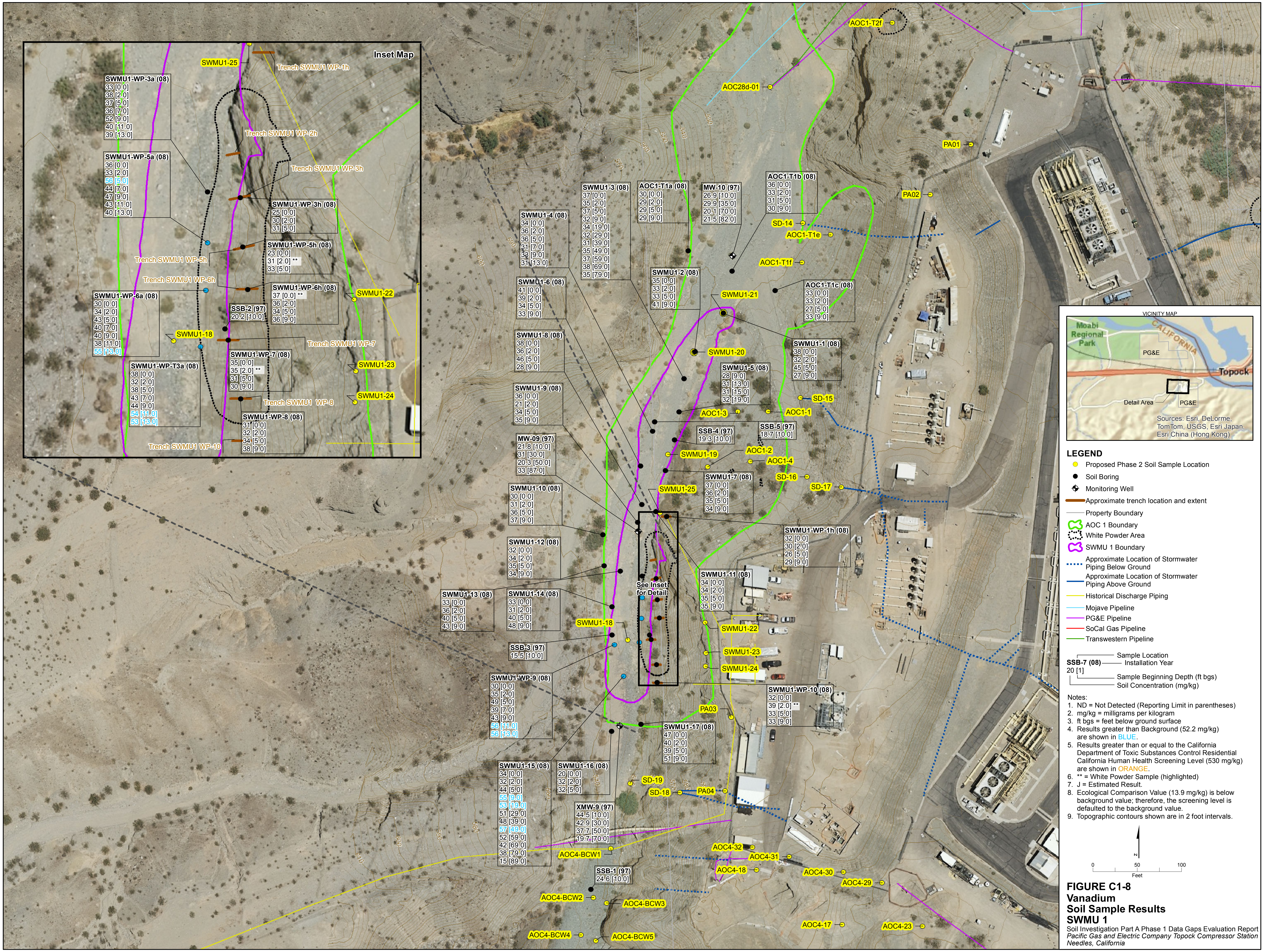

FIGURE C1-8
Vanadium
Soil Sample Results
SWMU 1
Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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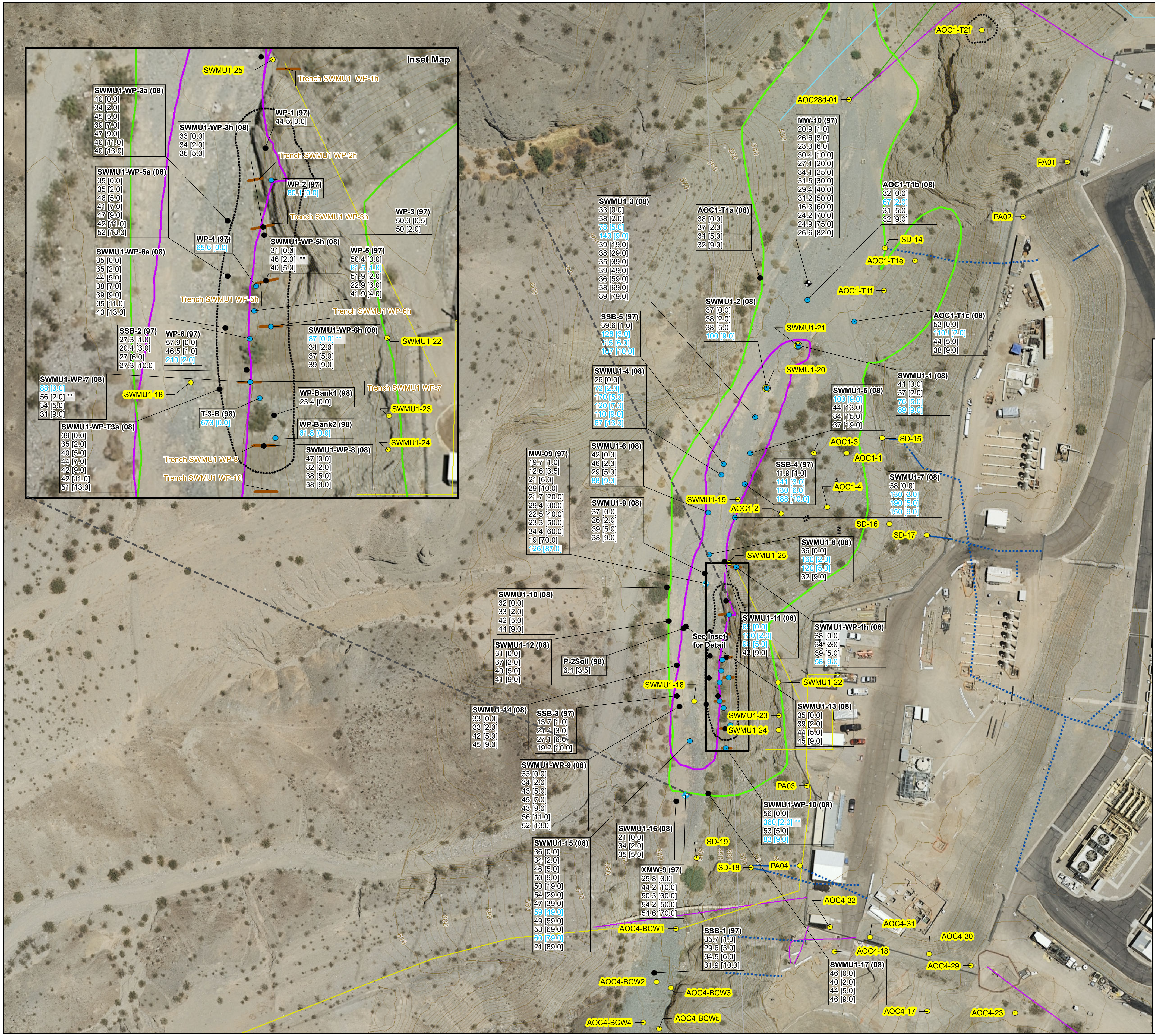
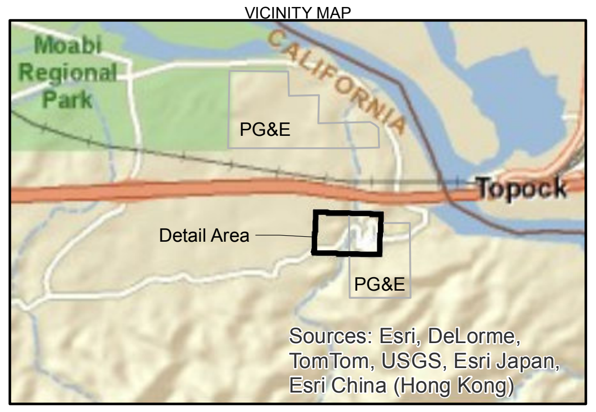


VICINITY MAP



LEGEND

- Proposed Phase 2 Soil Sample Location
- Monitoring Well
- Soil Boring
- Approximate trench location and extent
- Property Boundary
- AOC 1
- SWMU 1
- White Powder Area
- Approximate Location of Stormwater Piping Below Ground
- Approximate Location of Stormwater Piping Above Ground
- Historical Discharge Piping
- Mojave Pipeline
- PG&E Pipeline
- SoCal Gas Pipeline
- Transwestern Pipeline

SSB-7 (08) — Sample Location; Installation Year
20 [1] — Sample Beginning Depth (ft bgs); Soil Concentration (mg/kg)

Notes:
1. ND = Not Detected (Reporting Limit in parentheses)
2. mg/kg = milligrams per kilogram
3. ft bgs = feet below ground surface
4. Results greater than Background (58 mg/kg) are shown in BLUE.
5. Results greater than or equal to the California Department of Toxic Substances Control Residential California Human Health Screening Level (23,000 mg/kg) are shown in ORANGE.
6. ** = White Powder Sample (highlighted)
7. J = Estimated Result.
8. Ecological Comparison Value (0.164 mg/kg) is below background value; therefore, the screening level is set at the background value.
9. Topographic contours shown are in 2 foot intervals.

N

0 50 100
Feet

FIGURE C1-9
Zinc
Soil Sample Results
SWMU 1

Soil Investigation Part A Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station
Needles, California

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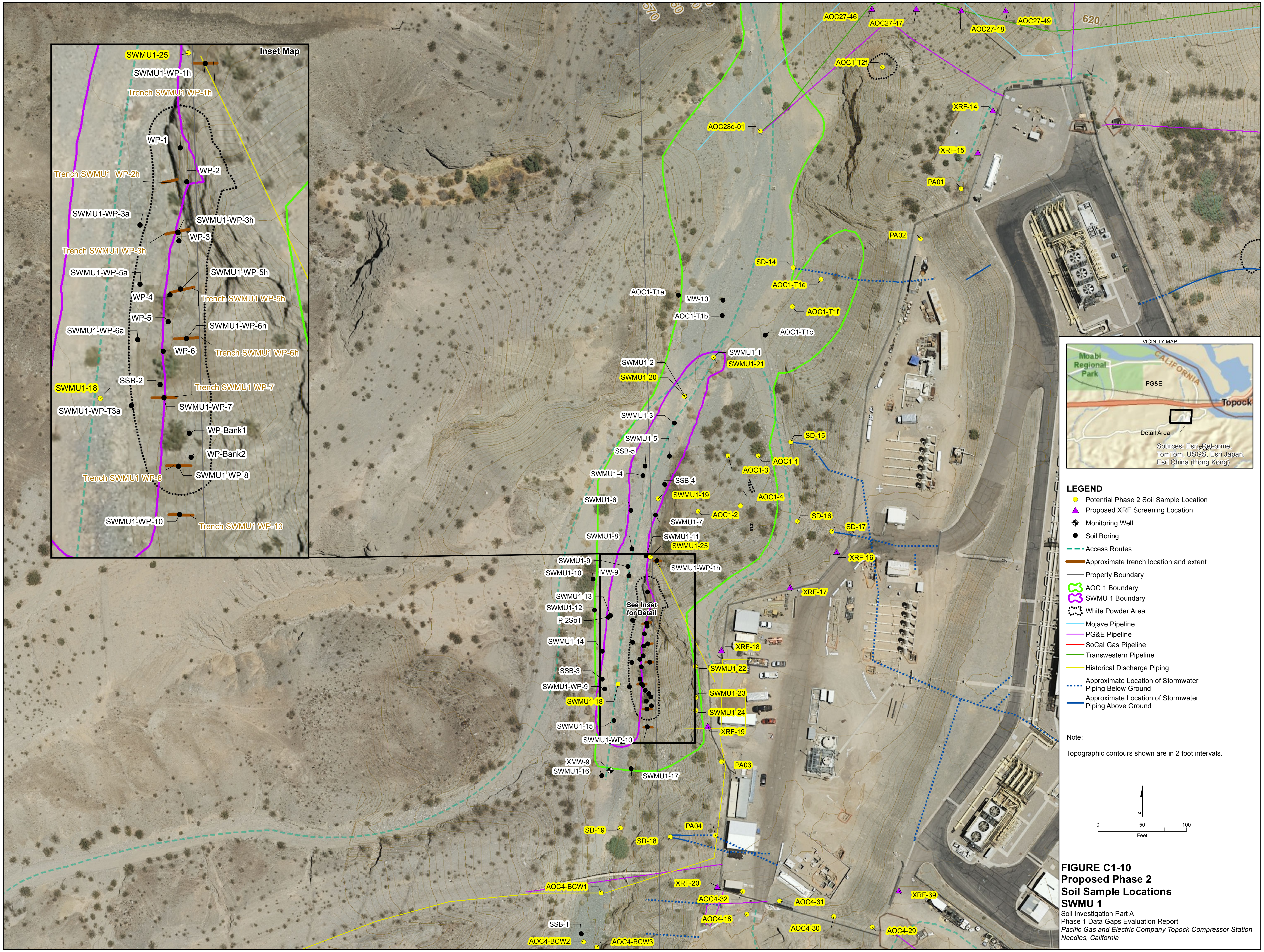

FIGURE C1-10
Proposed Phase 2 Soil Sample Locations SWMU 1
Soil Investigation Part A
Phase 1 Data Gaps Evaluation Report
Pacific Gas and Electric Company Topock Compressor Station Needles, California

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